MSB TECHNOLOGY

Super DVD Audio Player
Users Manual

It's a complete player, processor and preamp that plays everything!

Rev 1 Draft (5/03)

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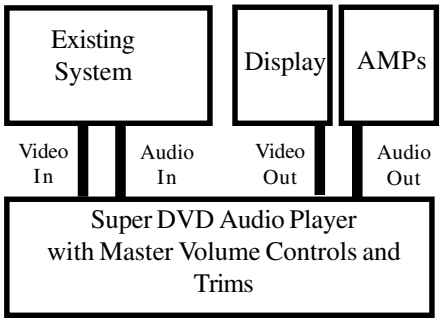
Simple Setup and Quick Start

***Location** - This unit produces a lot of heat. DO NOT STACK, Do not place anything on top of this unit or put in closed cabinet!*

***Power** - The SDVDA Player comes standard with an inboard power supply. A fuse block inside the unit allows the unit to be switched between 240V and 120V. Please check the back of the unit before plugging the unit in. Unit is configured for 120V unless otherwise marked. Leave the SDVDA powered on all the time.*

***Connections** - Connect the video outputs and audio outputs using the row of 8 RCA connectors. Be sure to connect to the set labeled output, not the set labeled input!*

***Very Important** - Be sure the toggle switch on the back of the unit is set to AUTO (the center position).*



***Best Installation** - Connect this player directly to your Amplifiers and Monitor or Projector. It is a complete system. If you already have a system, connect it to the inputs of this player. Connect the line level audio from your system to the 6 or 8 AUDIO INPUTS. Insert new cables from AUDIO OUTPUTS to your AMPS. Connect the video connections from your system to VIDEO INPUTS. Insert new cables from VIDEO OUTPUTS to Projector or monitor.*

***To use the SDVDA Player** - Insert disc and play. Adjust volume with either remote. (Volume starts out low on power up)*

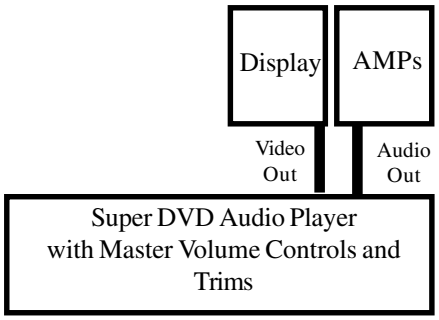
***To use your existing system** - Turn SDVDA Player off using remote. (Leave unit plugged in). Adjust system volume with either remote. Leave existing system volume at line level (0db).*

Super DVD Audio Player Users Manual

Rev 1 (5/03)

Unique Features and Unprecedented Performance

MSB has been making high-end audio players for over 15 years. The latest is a new audio player that plays SACD and DVD Audio discs, DTS CDs, CDs, MP3s and just about any disc sized music source. It has 24 bit 192k DACs, 192k MSB upsampling, MSB-built volume controlled analog outputs with a pass-through, as well as all the latest digital outputs including Firewire (IEEE 1394), 24 bit 192k MSB Network standard optical and coaxial outputs. It is the player for music lovers - enjoy the music in every disc format.



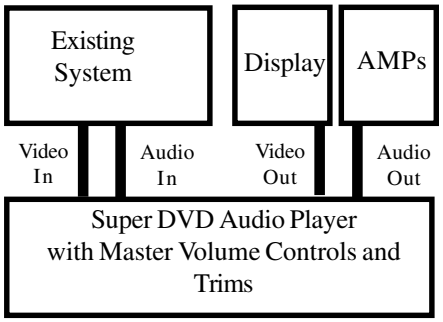
Just for audiophiles?

Not a chance. Why should home theater enthusiasts compromise video performance for great sound? The MSB Player features advanced progressive video with 108 MHz 12 bit DACs. Video pass-throughs allow easy integration into your system. All decoding is internal and our 8 channel audio system accommodates a wide range of advanced theater designs.

The strongest feature of this player is its unique ability to be integrated into the most demanding systems.

In the most simple case, the player is a complete multi-channel system. Add amplifiers and speakers and you have a full 8 channel surround system that will play back all the current music and movie formats. It includes two remote controls, a simple one for volume and play and a complex one for programming and total control.

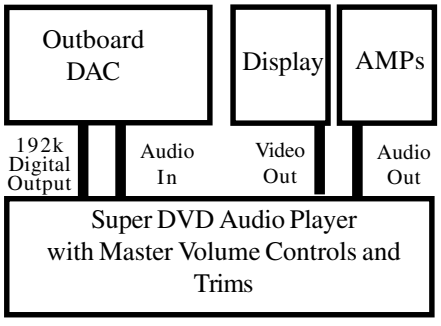
A second application is as an upgrade product for an existing home theater. The Player includes a master volume control and trims and has a complete audio and video pass-through. This means it can be installed into any existing system with separate amplifiers (or integrated system with external input) with no re-configuration or loss of features. You have just added a player that will play almost anything, and a much higher quality volume control to your system. Simple and fast with big results.



Another way to expand is to take advantage of the comprehensive 24 bit 192K digital audio outputs. External DACs can be added for any channels and they can be played back through a high-quality audiophile DAC and outboard volume control that can be slaved to the Players volume control. For example, a high-end balanced DAC and volume control can be added to the front channels for uncompromised audio only playback yet movies can be enjoyed without any system changes.

The Preamp Upgrade

The Super DVD Audio Player has just one 8 channel analog input. It is designed to be the last component in your system before the amplifiers. With its low impedance output it can drive long interconnects and handle any type of amplifier input stage design with optimum performance.



If you have a complex system with a preamp with many analog inputs, attach the outputs of your preamp to the input on the SDVDA Player. Set your preamp to a volume that matches the SDVDA output and use nothing but the SDVDA volume control in your system.

Burn-In

The concept of burn-in is little understood. Does it take your ears some time to get used to the incredibly detailed and life like sound of an MSB product or is something actually changing? The feedback we receive leads us to recommend at least 100 hours of burn-in on the DACs in this unit. Customers generally recommend one month.

Features

IEEE 1394 and MSB Network digital interface

The IEEE 1394 and MSB Network interface makes it possible to connect this player to another product with a single cable and enjoy high sampling rate (up to 192 kHz) PCM multichannel digital audio from DVD-Audio and SACD (IEEE only) discs , as well as digital audio (upsampled to 192k on MSB Network only) from DVD-Video, CD, Video CD and MP3 discs.

In addition to simplified connection, jitterless audio is possible with these technologies when playing audio CDs, SACDs and DVD-Audio discs.

Noise Shaped Video (NSV)*

Noise Shaped Video processing makes it possible to display video images at higher resolutions than would otherwise be possible using the same video data converter. This is achieved using the digital processing techniques of oversampling to reduce high-frequency aliasing and multi-bit Delta-Sigma processing (to reduce quantization noise). *Noise Shaped Video is a trademark of Analog Devices Inc.

DVD-Audio and SACD compatible

This player has separate signal paths and DACs for SACD and PCM Audio. This unit is capable of delivering exceptional sound quality in terms of dynamic range, low-level resolution and high-frequency detail.

Built-in Dolby* Digital and DTS* decoding with multichannel outputs

This player features multichannel analog outputs for connection to your amplifier to give you stunning surround sound from Dolby Digital, DTS and multichannel DVD-Audio discs. *Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories. *“DTS” and “DTS Digital Surround” are registered trademarks of Digital Theater Systems, Inc.

24 bit 192 kHz Upsampling

All of the audio channels output from both the volume controlled analog outputs and the MSB Network are upsampled to 24 bit, 192 kHz resolution using MSB’s proven 4X upsampling.

Progressive scan

When connected to a progressive scan-compatible TV or monitor using the component video outputs, you can enjoy extremely stable, flicker free images, with the same frame refresh rate as the original movie.

Super Fine Focus digital filter

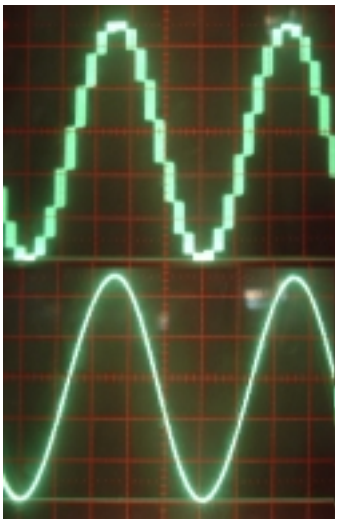
This improves the quality of the video output by reducing video noise and increasing the horizontal resolution to 540 lines.

MP3 compatibility

This player is compatible with CD-R, CD-RW and CD-ROM discs that contain MP3 audio tracks.

Graphical on-screen displays

Setting up and using your DVD player is made very easy using the graphical on-screen displays.



4X Upsampling On

Sign Wave (0dB, 19.95 kHz test tone Scope settings 2 V/div, 10usec/div)

What’s in the box

Please confirm that the following accessories are in the box when you open it.

- 2 remote controls
- 2 AA batteries and 2 AAA batteries
- 4-pin IEEE cable
- Power cable

Putting the batteries in the remote control

1. Open the battery compartment cover on the back of the remote control.
2. Insert two AA/R6P batteries into the battery compartment following the indications (+, -) inside the compartment of the larger remote. Install two AAA batteries in the smaller remote.
3. Close the cover.

Note, incorrect use of batteries can result in hazards such as leakage and bursting. Please observe the following:

· Don't mix new and old batteries together.

· Don't use different kinds of battery together—although they may look similar, different batteries may have different voltages.

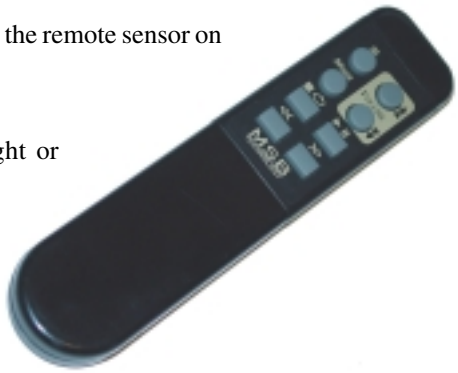
· Make sure that the plus and minus ends of each battery match the indications in the battery compartment.

· Remove batteries from equipment that isn't going to be used for a month or more.

· When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country or area.

Using the remote controls

Two remotes are provided. A small simple remote has just limited functions aimed primarily at volume control and is easy to use in the dark. The larger remote has all the Player setup and control functions. Keep in mind the following when using the remote controls:



· Make sure that there are no obstacles between the remote and the remote sensor on the unit.

· The remote has a range of about 23 ft. (7 meters)

· Remote operation may become unreliable if strong sunlight or fluorescent light is shining on the unit's remote sensor.

· Remote controllers for different devices can interfere with each other. Avoid using remotes for other equipment located close to this unit.

Replace the batteries when you notice a fall off in the operating range of the remote.

Disc/Content Format Playback Compatibility

This player was designed and engineered to be compatible with software bearing one or more of the following logos. Other formats, including but not limited to the following, are not playable in this player: Photo CD, DVD-RAM, DVD-ROM, CD-Rom except those that contain MP3 files formatted as specified in the "Compressed Audio Compatibility" section.

DVD-R/RW and CD-R/RW discs (Audio CDs and Video CDs) recorded using a DVD recorder, CD recorder or personal computer may not be playable on this machine. This may be caused by a number of possibilities, including but not limited to: the type of disc used; the type of recording; damage, dirt or condensation on either the disc or the player's pickup lens.

- This unit will play CD-R and CD-RW discs recorded in CD Audio or Video CD format, or as a CD-ROM containing MP3 audio files. However, any other content may cause the disc not to play, or create noise/distortion in the output.
- Unfinalized CD-R/RW discs recorded as CD Audio can be played, but the full Table of Contents (playing time, etc.) will not be displayed.
- This unit will play DVD-R/RW discs that were recorded using the DVD Video format or Video Recording format.
- Unfinalized DVD-R/RW discs cannot be played in this player.
- This unit will play CD-ROM discs containing files saved in the MPEG-1 Audio Layer 3 format (MP3) with a sampling rate of 44.1 or 48kHz. Incompatible files will not play and "UNPLAYABLE" will be displayed on the unit.
- Fixed bit-rate files are recommended. Variable bit-rate (VBR) files are playable, but playing time may not be shown correctly.
- The CD-ROM used to compile your MP3 files must be ISO 9660 Level 2 compliant.
- CD physical format: Mode1, Mode2 XA Form1.
- This player only plays MP3 tracks that are named with the file extension ".mp3" or ".MP3".

DVD-Audio *DVD -Video* *DVD-R* *DVD-RW*

Audio CD *Video CD* *CD-R* *CD-RW*

Super Audio CD

- This player is compatible with multi-session discs, but only plays sessions that are closed.
- Use CD-R or CD-RW media for recording your MP3 files.
- This player can recognize a combined total of up to 250 tracks and folders. If a disc containing over 250 tracks/folders is loaded, only the first 250 tracks/folders recorded on the disc will be playable.
- Folder and track names (excluding the ".mp3" extension) are displayed.
- There are many different recording bit-rates available to encode your MP3 files. This unit was designed to be compatible with all of them. Audio encoded at 128Kbps should sound close to regular CD Audio quality. This player will play lower bit-rate MP3 tracks, but please note that the sound quality becomes noticeably worse at lower bit-rates.
- If you record a disc using a personal computer, even if it is recorded in a "compatible format" as listed above, there will be cases in which the disc may not be playable in this machine due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information. Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.
- DVD-Video discs are generally divided into one or more titles. Titles may be further subdivided into chapters.
- DVD-Audio discs are divided into one or more groups that can each contain a number of tracks.
- CDs, SACDs and Video CD/Super VCDs are divided into tracks.
- CD-ROMs containing MP3 files are divided into folders and tracks. Folders may also contain further subfolders.

DVD-Video regions

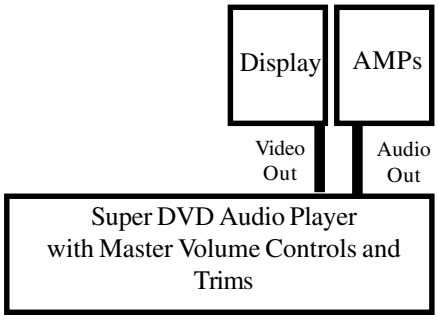
All DVD-Video discs carry a region mark on the case somewhere that indicates which region(s) of the world the disc is compatible with. Your DVD player was produced to only play region 1 discs. Discs from incompatible regions will not play in this player. Discs marked ALL will play in any player.

System Design and Connections

This DVD player has many interesting features that allow it to be used effectively in a whole range of audio and home theater systems. Following the system design section the individual features of the front and rear panel will be described. This player can be distinguished from most others in three ways. First it includes an eight channel volume control. This allows it to be used independently with nothing but amplifiers, speakers and a display. Second, it includes full pass-through features for both audio and video. This allows it to be inserted into an existing system with no changes to the system. Third, it contains substantial and very high quality digital audio outputs, allowing it to be incorporated in a very high performance system. Four systems configurations are shown below.

Stand alone system

With 8 channels of volume controlled audio and video in composite, interlaced component and progressive component, the SDVD player is a complete system. How good is it? The volume control is excellent in the player, as good as any super high-end 2 channel audio preamp. As a DVD player it has excellent sound. For the most discriminating listener who is primarily interested in audio, not movies, we recommend adding PLATINUM DACs, at least to the front channels. We have made provision for these, so that the installation is easy and the operation remains simple. If you have balanced amps and want a balanced output player, see the enhanced system below.



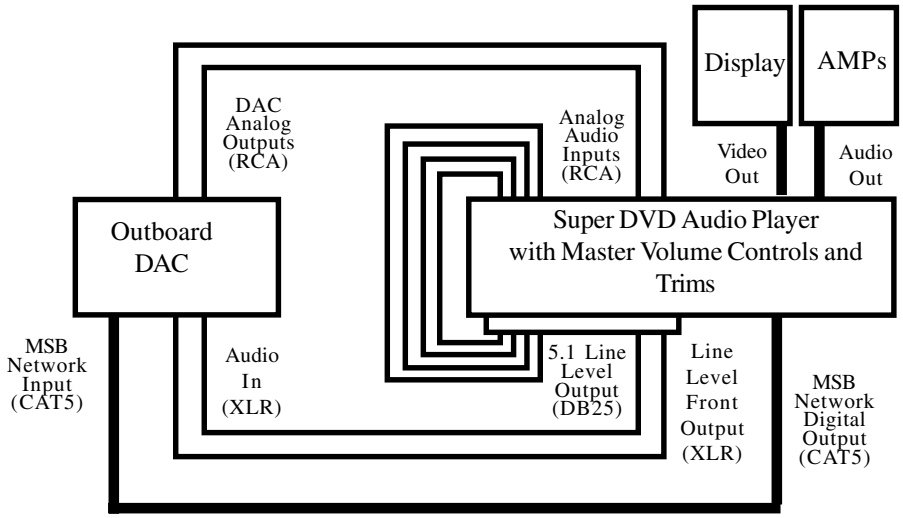
Enhanced Audio system

Up to three external DACs can be added to the player using either IEEE 1394 or the MSB Network. MSB sells a line of DACs that are optimized for 192K operation over the MSB Network.

For single ended amplifier operation, attach the MSB Network output to an MSB DAC using a CAT5 cable. Now attach the single ended analog outputs of the DAC to the appropriate channel analog inputs on the back of the player. Now plug a DB-25 to RCA cable (availible from MSB) into the 5.1 Line Level outputs of the player. This output is line level and contains all the channels. Plug in the RCA outputs to either the audio pass-through on the DAC or the Audio inputs on the player as appropriate. Turn the SELECT toggle switch on the back of the player to the OFF position. This instructs the player to look for DVD audio on the input during play, instead of from the internal DACs. For example, if a Platinum LINK II DAC is used with the player, the hookup is as shown below. The rear, center and sub channels pass out of the DB-25 line level output and are looped to the rear, center and sub channel inputs on the back of the player. The front channels are plugged into the PLATINUM using a RCA to XLR adapter (as the platinum only has balanced inputs). It was designed to use this adapter for single-ended output. The toggle switch is turned OFF so that the player looks to the 8 channel input instead of the internal DACs for audio from the player. We must make the analog connection through the DAC because the PLATINUM DAC does not decode SACD. It passes the SACD through when played. Last, disable the volume controls in the external DAC by removing the volume modules or setting the level to 0 db and putting tape over the remote sensor as the player and DAC use the same remote codes.

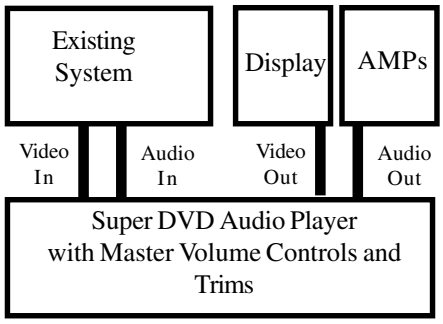
For front channel balanced operation, the task is complicated just a little. Because the volume control in the player is single-ended, the MSB PLATINUM MVC Preamp is used externally. It is configured at the factory to run in the slave mode and is attached to the player using the MSB NETWORK. It now matches the master volume set at the player. Just as in the single-ended mode, the external DAC is attached to the MSB NETWORK. The balanced line level output is attached to the analog input of the DAC. The balanced output of the DAC is hooked up to the balanced input of the MVC and its balanced output is connected to the front amplifiers. The remaining channels can be hooked up as described above.

For stereo operation only, the process is simplified. Connect the balanced line level out and the MSB NETWORK to the PLATINUM DAC. Connect the DAC directly to your amplifiers using either single-ended or balanced. Use the volume control in the DAC as they use the same remote codes. Ignore the volume settings on the player as they are not used.



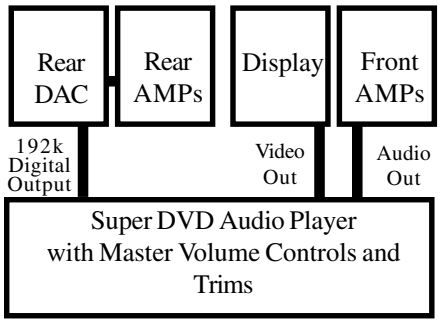
Add to a complex home theater

The player provides a simple way to add into most home theater systems, even if quite complex. Identify the cables running to the amplifiers. Unplug them and plug them into the 8 channel input on the player. Now run new cables from the player outputs to the amplifiers taking care that each channel is looped through the player in the same order. Now find the video going to the monitor or projector. Also loop it through the player. Now when the player is OFF, nothing is changed in the system. It will work just as it did before except that the player becomes the new master volume control for the system. The volume control for the system works if the player is on or off. Play a CD in the player at a comfortable volume. Now play something in your old system. Leave the volume the same on the player but adjust the old system level until the two match. Now you will achieve the highest possible performance from your new player, with no compromise to your existing system.



Enhanced Home Theater Design

One of the more powerful features of the MSB NETWORK is the ability to run 192k digital audio over great distances with low cost CAT-5 cable with absolutely not performance degradation. This can be nicely applied in large home theaters. Rear channel as well as subwoofer information can be sent to the rear of the home theater along with embedded volume information all in one CAT-5 cable. (Actually all the channels are sent on the network, so any can be used). It can go under the carpet or through the walls. It is a low cost cable and is available everywhere as it is used to create Ethernet computer networks (LANs). At the rear of the theater, the cable is plugged into the MSB Multiple Volume Control (MVC) with the internal DAC option operating in the SLAVE mode. All channels are now available at the rear with full fidelity, and linked directly to the players master volume control. This concept can also be applied to multi-room ideas where the MVC is run in the Master mode, giving you complete control over the volume in this second room.



Rear Panel Details

The most important feature of the rear panel is a small toggle switch near the power connection labelled ON AUTO and OFF. It controls the audio pass-through.

toggle switch on position - In this position, the 8 VOLUME CONTROLLED ANALOG AUDIO OUTPUTS always output the sound made by the player. Even when the player is off, the pass-through feature is disabled. This position should be selected only when the pass-through feature is not used or during troubleshooting operations as directed.

toggle switch AUTO position - In this position, the 8 VOLUME CONTROLLED ANALOG AUDIO OUTPUTS output the sound made by the player only when the player is turned on. When the player is off, the pass-through feature is enabled and the inputs are connected to the outputs through the volume control. This position should be selected any time the pass-through feature is used for normal operations in most cases.

toggle switch OFF position - In this position, the 8 VOLUME CONTROLLED ANALOG AUDIO OUTPUTS always output the sound input on the ANALOG AUDIO INPUTS. Even when the player is ON and playing no sound will be heard unless an outboard DAC is used to supply the 8 inputs. This position should be selected only when the pass-through feature is used to add outboard DACs or processors.

Inputs

POWER - Connect the supplied power cord here, then plug into a power outlet. Unit is configured internally for either 100V to 120 V operation or 220V to 240V operation.

MICROPHONE - This input accepts a standard microphone jack and is used for automatic setup of all channels and levels. This feature is not activated in the current level of code It is expected to be a user installable software upgrade some day.

8 ANALOG AUDIO INPUTS – They are all of equal quality although some can be mixed and some cannot.

VIDEO INPUTS - A component input as well as composite and S-Video inputs are provided. They pass directly to the outputs with no circuity, passive or active when the player is off. When turned on, they are disconnected and the players video is output. The video switching is not effected by the toggle switch.

Video Outputs

This player has standard (composite), S-video and component video outputs. The main difference between them is the quality of the picture. S-video delivers a better picture than standard composite video, while component video gives better picture quality still. The variety of outputs also gives you the flexibility of connecting your particular equipment using the best connection type available.

I connected the DVD player to my AV receiver, and although the sound is fine, there's no picture. What did I do wrong? Make sure that the type of video connection from the DVD player to your AV receiver is the same as that from the receiver to your TV. Most AV receivers won't convert from one kind of connection to another.

COMPONENT VIDEO OUT (YUV) - High quality video output for connection to a TV monitor or Projector that has component video inputs. Connect using a commercially available three-way component video cable. Be careful to match the colors of the jacks and cables for correct connection.

PROGRESSIVE SCAN VIDEO - Compared to interlace video, progressive scan video effectively doubles the scanning rate of the picture, resulting in a very stable, flicker-free image. Progressive scan video is available only from the component video output. If you connect a TV that is not compatible with a progressive scan signal and switch the player to progressive, you will not be able to see any picture at all.

In this case, you must hook up the player with a composite or S output and program the component output to interlace using the remote.

COMPOSITE VIDEO OUT (C) - Standard video output that you can connect to your TV or Projector.

S-VIDEO OUT (S) - S-Video output that you should use instead of the VIDEO OUT jack if possible..

Analog Audio Outputs

8 VOLUME CONTROLLED ANALOG AUDIO OUTPUTS – They are designed to drive any high-end Amplifier directly. Two outputs are extra channels and can be programmed to contain different content depending on your needs. See Page # 18 for details. In order to be able to hear multichannel sound from SACDs, DVD-Video and DVD-Audio discs, you need to set SACD Playback to Multi-ch Area, and the Audio Output Mode to 5.1 Channel (see page # 34).

LINE LEVEL FRONT – This balanced analog output is provided primarily to supply high-quality SACD audio to the analog passthrough input of an outboard DAC. It should only be used for SACD as the quality of any other audio is inferior to the quality from the volume controlled single-ended outputs. Even if you do not intend to use the volume control, use the volume controlled output for critical listening.

5.1 LINE LEVEL OUTPUT - This 6 channel output is provided primarily to supply high-quality SACD audio to the analog passthrough input of an outboard DAC. It should only be used for SACD as the quality of any other audio is inferior to the quality from the volume controlled single-ended outputs. Even if you do not intend to use the volume control, use the volume controlled output for critical listening.

Digital Audio Outputs

The player also has optical and coaxial digital outputs should you want to use an external decoder or the decoder in your AV receiver. Note that multichannel DVD-Audio and SACD audio is not output through these jacks, so this connection should be in addition to, rather than instead of, a 5.1 channel analog connection.

Toslink Optical – Although this format has the lowest bandwidth, it is one of the more common outputs on low-end products. It also offers ground isolation between products and noise immunity over long runs. 192K material is downsampled to 48K. Digital audio outputs can also be programmed for connection to a PCM, Dolby Digital, DTS and/or MPEG-compatible processor.

Coaxial – A good input for short runs and lower frequencies. 192K material is downsampled to 48K. Digital audio outputs can also be programmed for connection to a PCM, Dolby Digital, DTS and/or MPEG-compatible processor.

The MSB Network

MSB Network – These triple CAT-5 connectors are actually three identical multi-channel high-definition digital audio outputs with full 24 bit, 192K audio resolution with all material played except SACD. These outputs can be attached to an outboard DAC. All three outputs contain volume information so they can be attached to a MVC with internal DACs or a Network DAC, and they will slave to the SDVD Player.

SLAVE - This MSB Network output is just for volume control and can be used as either an output, sending imbedded volume information for an outboard MVC. This is useful if balanced outboard DACs and Balanced MVC are used. It can also be used as a volume input, if the DVD player was converted to a slave and another MVC was set up as the master. Although not likely, it could happen in a large Theater.

One of the most powerful features of the Player is the MSB network. The MSB network has the following capability:

* Unidirectional communications over any twisted pair
* Simultaneous transmission of 8 audio channels with 32 bit resolution at 192 kHz sampling rate
* Simultaneous transmission of 8 data channels with 3 Mbs data rate (for volume and trim data)
* A single serial channel of 384 kbits/sec for control and system data.

This network is our answer to 192 kHz audio transmission and multichannel transmission in the same package. We provide network outputs to this player and offer a source upgrade to your transport as well. In a surround processor, this upgrade can send up to 8 channels of decoded data through one wire to separate DACs. The twisted pair format is very convenient as it has become the standard for all computer networks. Ethernet networks use CAT5 wire which contains 4 twisted pairs. This one cable could be used to send 32 channels of 32 bit, 192 kHz audio data! Several cables are available for connecting MSB transports to any MSB DACs including CAT5 cable at any length up to 80 feet.

MSB Network Capability
Twisted Pair Wiring
XLR connectors (AES/EBU Compatible)
Eight 32 bit 192 kHz audio channels
8 control channels
Extra serial channel

The IEEE1394 Network

IEEE 1394 - Two 4-pin, S400 connectors are provided for connection to a firewire DAC or to IEEE1394-equipped receivers and other components. Each IEEE connector acts simultaneously as both input and output. All data formats are output.

If you have a receiver with an IEEE1394 connector, you can connect it to this player using the supplied IEEE1394 cable.

The IEEE1394 connector outputs every kind of digital audio that the player is compatible with, including DVD-Video, DVD-Audio, SACD, Video CD, CD and MP3. In contrast, the optical and coaxial digital outputs do not output SACD and multichannel DVD-Audio.

When playing DVD-Audio, (Excluding any part of the disc that features moving video) CD or SACD discs over the IEEE1394 interface, the digital audio is jitterless if the connected receiver is compatible with PQLS (rate control). See the operating instructions that came with your receiver for information on compatibility with this feature.

- There may be cases where the PQLS/rate control function and/or the IEEE1394 audio does not work properly even when connected to IEEE1394 audio-compatible equipment.
- Do not disconnect IEEE1394 cables or switch off any components connected using IEEE1394 while this player is on.
- Copy-protected 96kHz DVD-Video discs are downsampled to 48kHz when using the IEEE1394 connection.
- Use the supplied IEEE1394 cable to connect one of the IEEE1394 connectors on this player to an IEEE1394 connector on your AV receiver.
- The arrow on the cable connector body should be face down for correct alignment with the connector on the player.
- Connect the VIDEO OUTPUT jack on this player to a video input on your AV receiver. The IEEE1394 connectors on this player do not output video.
- In order to be able to hear multichannel sound from SACDs, DVD-Video and DVD-Audio discs, you need to set SACD Playback to Multi-ch Area, and the Audio Output Mode to 5.1 Channel.
- To be able to use the Auto Select Play feature, you must first set it up using the Auto Select Play menu screen. See page # 25.
- When the IEEE1394 indicator is lit on the front panel, no audio is output from the other digital or analog audio jacks. You can switch off the IEEE1394 output using the Audio Out menu if you need to use the analog and/or optical/coaxial digital outputs.
- The front panel IEEE1394 indicator only lights when the receiver is on and the input is set to IEEE1394. See also the receiver's operating instructions.
- You can connect several components together using IEEE1394. See Creating an IEEE1394 network below.
- If you need to use an IEEE1394 cable other than the one supplied, please use 4-pin, S400 cables less than 11 ft./3.5 meters long. Although longer ones are available, they may not work reliably.

Creating an IEEE1394 network

Using the IEEE1394 interface it is possible to chain up to 17 components together so that the digital audio and control signals from each component is available to other components in the network. With the addition of an IEEE1394 repeater, it's possible to connect up to 63 components. IEEE1394 connectors come in 4-pin and 6-pin configurations. This player uses the 4-pin connection, but the two types can be mixed on a network.

This player is compatible with IEEE1394 Audio components, such as AV receivers. It may not work properly if connected to IEEE1394 MPEG-II TS equipment (such as a digital satellite tuner), IEEE1394 DV equipment (such as a DVD recorder or DV camcorder), or an IEEE1394-equipped personal computer. Check the operating instructions supplied with your other IEEE1394 components for compatibility information. Connected components should be DTCP (Digital Transmission Content Protection) compliant to be able to play DVD-Video, DVD-Audio and SACD IEEE1394 audio. If a connected component is not DTCP compliant, only CD audio will be output.

When setting up an IEEE1394 network, it's important that the components form an open ended chain or a tree. The system will not work if the connected components form a loop. If a loop is detected, the message LOOP CONNECT shows in the display. Figs. 3 and 4 show connections that form a loop. Another consideration when connecting IEEE1394 devices is the speed of the interface. At present there are three speeds: S100 (slowest), S200 and S400 (fastest). This player uses the S400 type. Although you can use components with different speeds together, we recommend connecting slower speed components at the edge of the network if possible. This will keep the network free of bottlenecks. When used within an IEEE1394 network, this player must be on for the IEEE1394 connection to be maintained. Other components in the network may or may not maintain the connection in standby (none will when the power is completely off)—check the operating instructions supplied with individual components. Note that the audio may be momentarily interrupted if a component in the IEEE1394 network is switched on/off, or its IEEE1394 connection is switched on/off.

Front Panel Controls

OPEN/CLOSE - Press to open or close the disc tray (when in standby, this button will also switch the power on).

STOP - Press to stop the disc (you can resume playback by pressing (>) (play).

PLAY / PAUSE - Press to start or resume playback. If playing, press to pause playback. Press again to restart. (when in standby, this button will also switch the power on).

FORWARD SCAN - Press and hold for fast forward scanning.

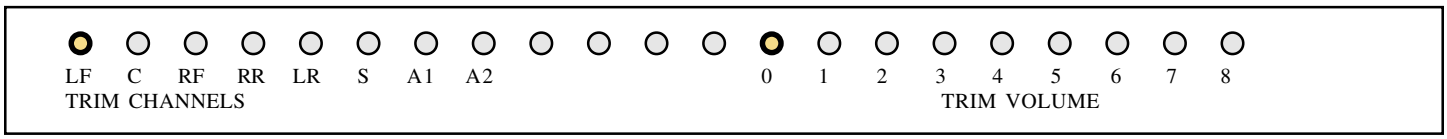
REVERSE SCAN - Press and hold for fast reverse scanning.

MUTE – Mutes the audio outputs of all channels immediately. Can be activated on the front panel or remote. Causes the volume indication LED to blink fast, and allows the volume to be adjusted up and down quickly. A second press releases the mute mode.

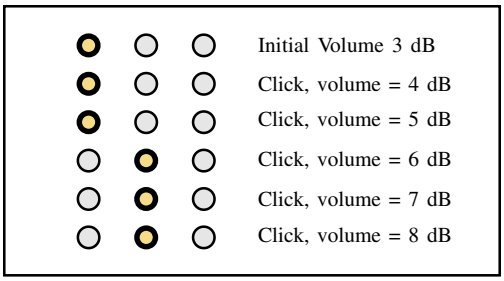
VOLUME UP AND DOWN – These buttons adjust the main volume control, changing all the channels at the same time. Can be activated on the front panel or remote. They are also used to adjust the trim levels while in the setup mode. Each button click is 1db change. Each LED is 5 db so the button must be pressed 5 times to see an LED change. Holding the button continuously steps the volume.

MODE – This button places the MVC in the setup mode. The red Setup LED turns on when in this mode. In the setup mode, the first channel, the LF channel is indicated by the farthest left LED being lit. The trim level is also indicated starting at the 13th LED from the LEFT. 8 LEDs worth of trim can be adjusted for each channel using the volume up / down buttons. Pressing the button again shifts to the C channel, the second LED is now lit and again, the level is indicated. The process is repeated 8 times until all channels are set. (see diagram below). The unit is back in the normal mode and the new trim settings will be remembered until changed. To reset all trims, hold setup and mute together for 15 seconds.

Volume Display – A long row of LEDs indicates the volume setting. Each LED actually represents 5 volume steps. To reproduce an exact setting, count the number of button clicks from the change in LED. Each button press is 1 dB, each LED is 5 dB. The range of the MVC is reduced by trim increases. See section on this topic.



Display



1 5.1CH - Lights when analog 5.1 channel output is selected
2 V-PART - Lights when playing a video part of a DVD disc
3 PRGSVE - Lights when the video output is progressive scan
4 (picture of camera) - Lights during multi-angle scenes on a DVD disc
5 GUI (Graphical User Interface) - Lights when a menu is displayed on screen
6 GRP - Indicates that the character display is showing a DVD-Audio group number
7 TITLE - Indicates that the character display is showing a DVD-Video title number
8 (.) - Lights when TruSurround is active
9 TRK - Indicates that the character display is showing a track number

10 CHP - Indicates that the character display is showing a DVD chapter number

11 REMAIN - Lights when the character display is showing the time or number of tracks/titles/ chapters remaining

12 Character display

13 II - Lights when a disc is paused

14 (arrow right) - Lights when a disc is playing

15 DD - Lights when a Dolby Digital soundtrack is playing

16 DTS - Lights when a DTS soundtrack is playing

Remote controls

Simple Volume Remote

The Simple MSB remote contains two functions. The top bank of 4 buttons exactly duplicate the function of the equivalent buttons on the front panel of the Player and control volume functions. The lower bank of buttons control the basic functions of Player, including Stop, Play/Pause, FORWARD SCAN and REVERSE SCAN. The buttons are all available on the front panel and the more complex remote.. Batteries are not shipped in the remote. Two AAA batteries are required.

Complete Remote

1 (STANDBY/ON) - Press to switch the player on or into standby

2 DISPLAY - Press to display information about the disc playing (page 51)

3 AUDIO - Press to select the audio channel or language (pages 49-50)

4 SETUP - Press to display (or exit) the on-screen display

5 ENTER & Joystick - Use to navigate on-screen displays and menus. Press ENTER to select an option or execute a command

6 (RETURN) - Press to return to a previous menu screen

7 V.ADJ (VIDEO ADJUST) - Press to display the Video Adjust menu (pages 56-57)

8 (square) - Press to stop the disc (you can resume playback by pressing (right arrow) (play)

9 (right arrow) - Press to start or resume playback

10 (picture of arrows) - Press to jump to the start of the previous/next chapter/track

11 PLAY MODE - Press the display the Play Mode menu (You can also get to the Play Mode menu by pressing SETUP and selecting Play Mode)

12 Number buttons

13 MENU - Press to display a DVD disc menu, or the Disc Navigator if a DVD-RW, CD, Video CD or MP3 disc is loaded

14 OPEN/CLOSE - Press to open or close the disc tray

15 ANGLE - Press to change the camera angle during DVD multi-angl

16 SUBTITLE - Press to select a subtitle display

17 TOP MENU - Press to display the top menu of a DVD disc

18 MULTI DIAL - Use for scanning and slow motion control

19 Jog indicator - Lights when multi dial is in jog mode

20 JOG (JOG MODE) - Press to put switch jog mode on/off. When on, MULTI DIAL to advance or reverse frames

21 FL (DIMMER) - Press to change the display brightness

22 II - Press to pause playback; press again to restart

23 (left arrows) and (left & right arrows) and II (right arrow)/I (right arrow) - Use for reverse/forward slow motion playback, frame reverse/advance and reverse/forward scanning.

24 SURROUND - Press to activate/switch off (picture of arrows) V/ TruSurround

25 CLEAR - Press to clear a numeric entry

26 ENTER - Press to select an option or execute a command

TV Control - These buttons control the volume control part of the Player.

Press FUNC to select the TV for remote control operation

VOLUME UP AND DOWN – These buttons adjust the main volume control, changing all the channels at the same time. Can be activated on the front panel or remote. They are also used to adjust the trim levels while in the setup mode. Each button click is 1db change. Each LED is 5 db so the button must be pressed 5 times to see an LED change. Holding the button continuously steps the volume.

27 MODE (FUNC) – This button places the MVC in the setup mode. The red Setup LED turns on when in this mode. In the setup mode, the first channel, the LF channel is indicated by the farthest left LED being lit. The trim level is also indicated starting at the 13th LED from the LEFT. 8 LEDs worth of trim can be adjusted for each channel using the volume up / down buttons. Pressing the button again shifts to the C channel, the second LED is now lit and again, the level is indicated. The process is repeated 8 times until all channels are set. The unit is back in the normal mode and the new trim settings will be remembered until changed. To reset all trims, hold setup and mute together for 15 seconds.

28 MUTE (O) – Mutes the audio outputs of all channels immediately. Can be activated on the front panel or remote. Causes the volume indication LED to blink fast, and allows the volume to be adjusted up and down quickly. A second press releases the mute mode.

Player Setup

Eight Channel Audio Configuration

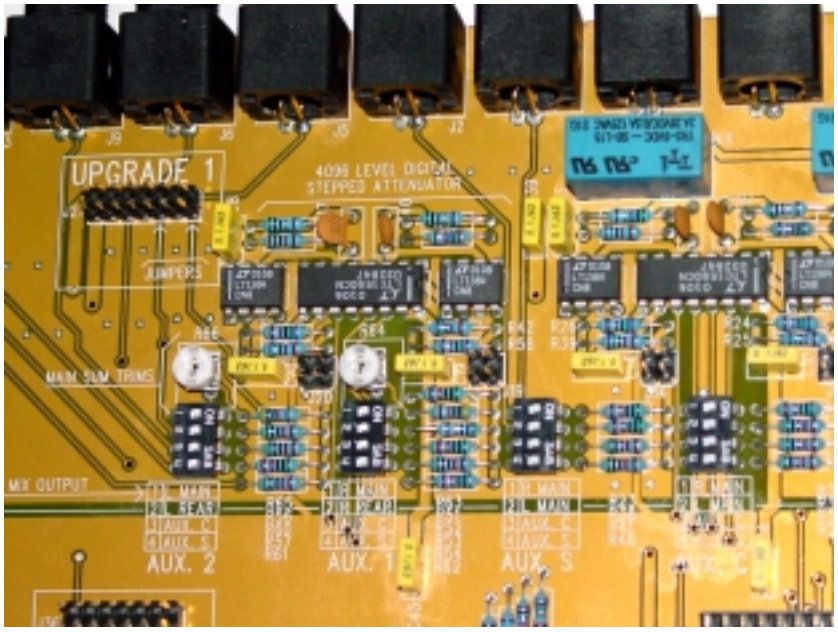
Setup Operations

Setup involves two parts. First, the overall configuration is chosen and any internal switches can be set as shown. Then the final levels are set during playback later. These setup features are for the more advanced user. Most setup parameters can be done using the menus.

Configuration Options

The Player can be configured for audio and home theater applications. We have listened to this product in the most demanding audio systems and are confident that you will not find a more neutral 2 channel CD/DAD/ DVD-Audio Player.

One time configuration is accomplished with user settings inside the product.



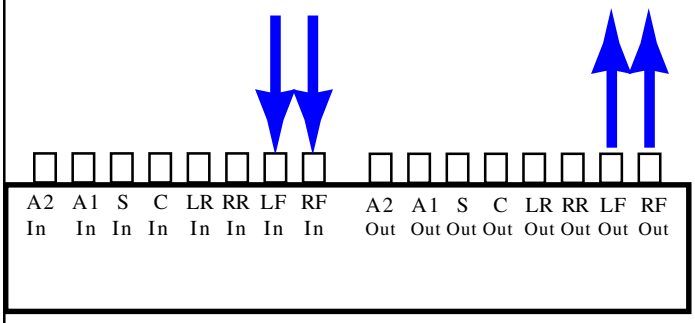
Opening the Player

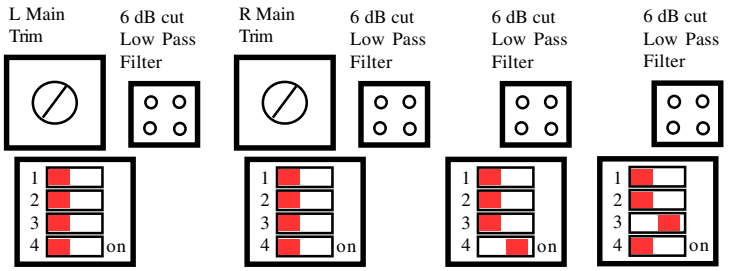
Place the Player upside down on a soft surface like a tablecloth or carpet. Disconnect the power supply. Remove the three philips screws on the front edge of the cover. Turn the Player over and remove the three philips screws from the back edge of the cover. Carefully separate the base from the cover by sliding it toward the front. Tip the cover forward and place with the front down, right in front of the player. Take care not to disconnect the ribbon cables to the front panel. Place the Player so that the RCA connectors are facing AWAY from you. This way all the diagrams will be oriented correctly.

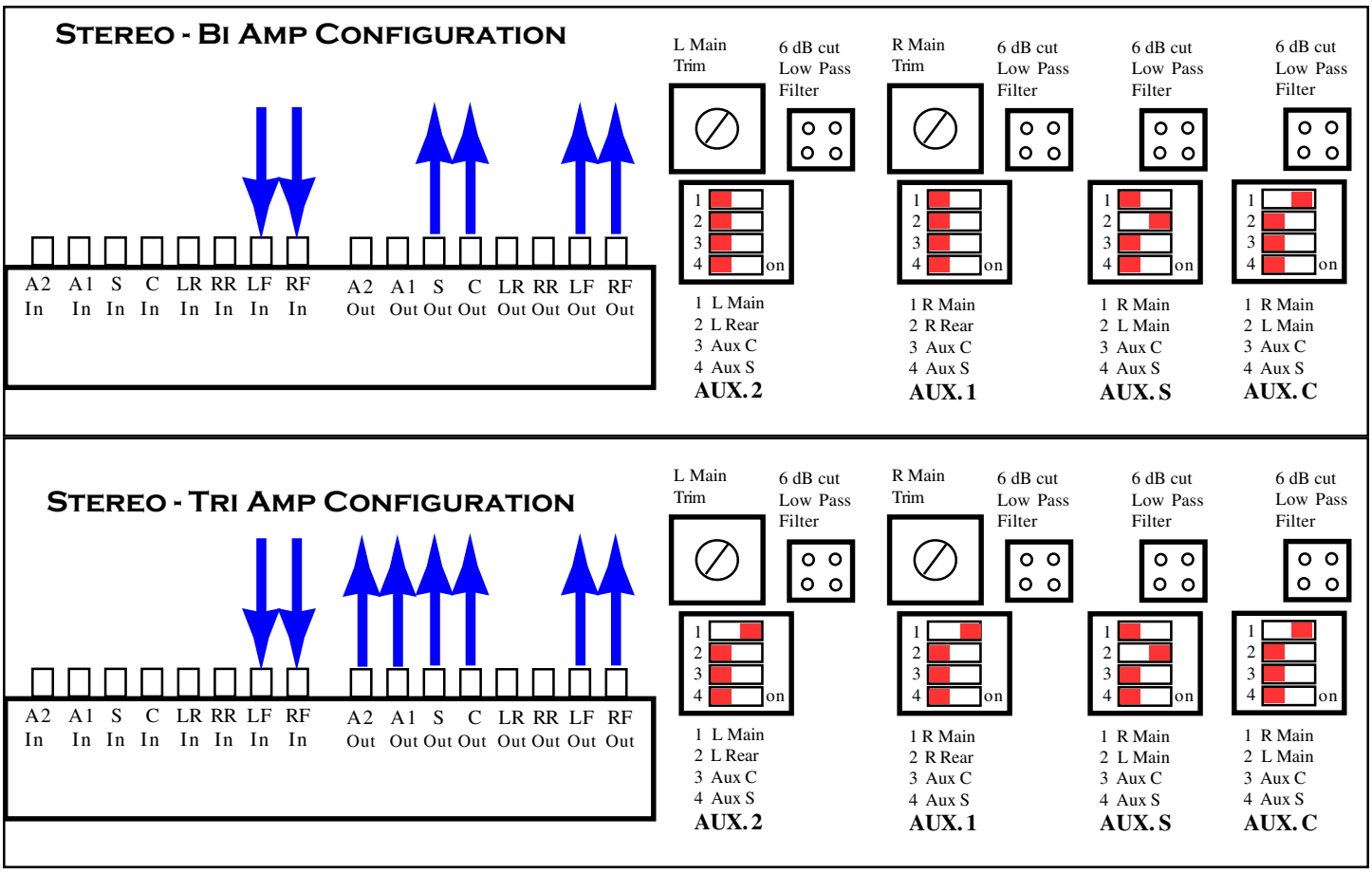
The photo shows the location of the switches and jumpers. The following diagrams and switch settings show what can be done.

First we show the standard factory settings in a stereo application. Notice that each output channel besides the fronts is comprised of the source channels you select. In the standard settings, the center channel out is made from the center channel source as the third switch is turned on. If you did not want a center but an extra sub channel, you could turn on the AUX-S switch #4.

Stereo - Standard Configuration



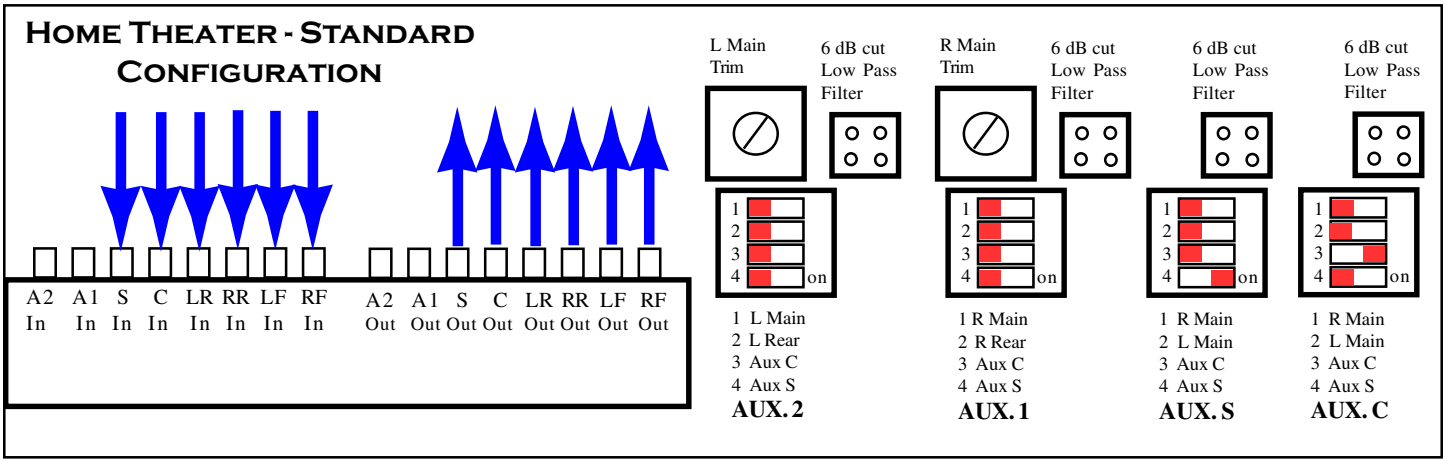




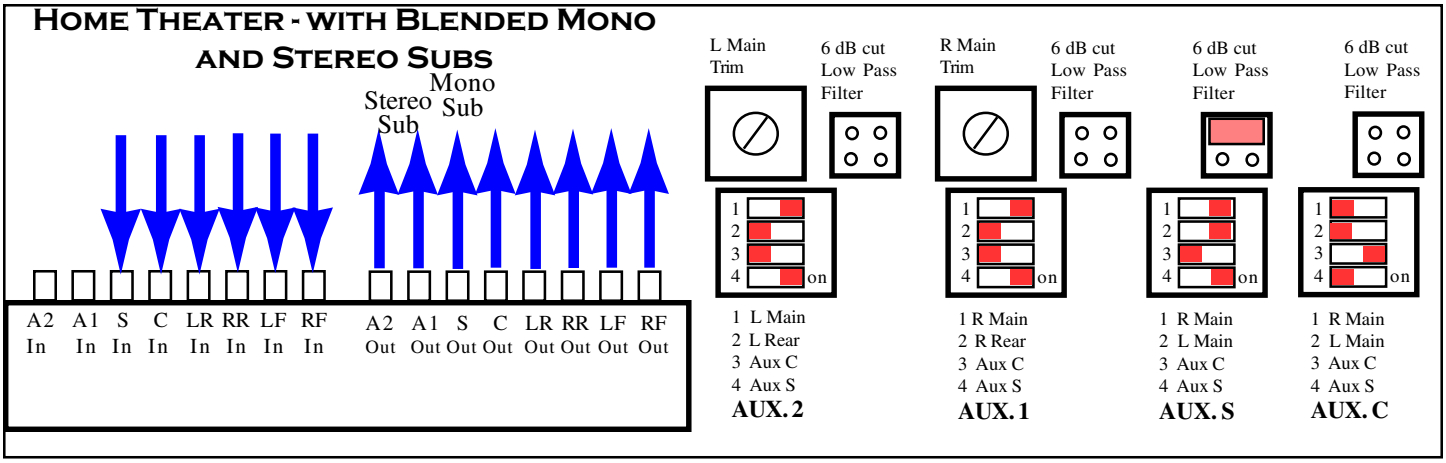
Bi-Amp and Tri-Amp configurations can be supported. In these cases, the outputs shown all would have the same inputs duplicated on two and three pairs of outputs. The center output AUX C would have the R Main selected. Each channel of output has an independent trim volume and is adjusted using the master volume control.

If separate subs are used with a stereo system we can make both stereo and mono subs. The low pass filters can be implemented which have a 3 dB point at about 120 Hz. Notice that the AUX C channel is made by mixing the R and L front channels. This sum results in a higher level signal. The 6 db cut feature is implemented with a jumper which reduces the combined level to a level equivalent with the others.

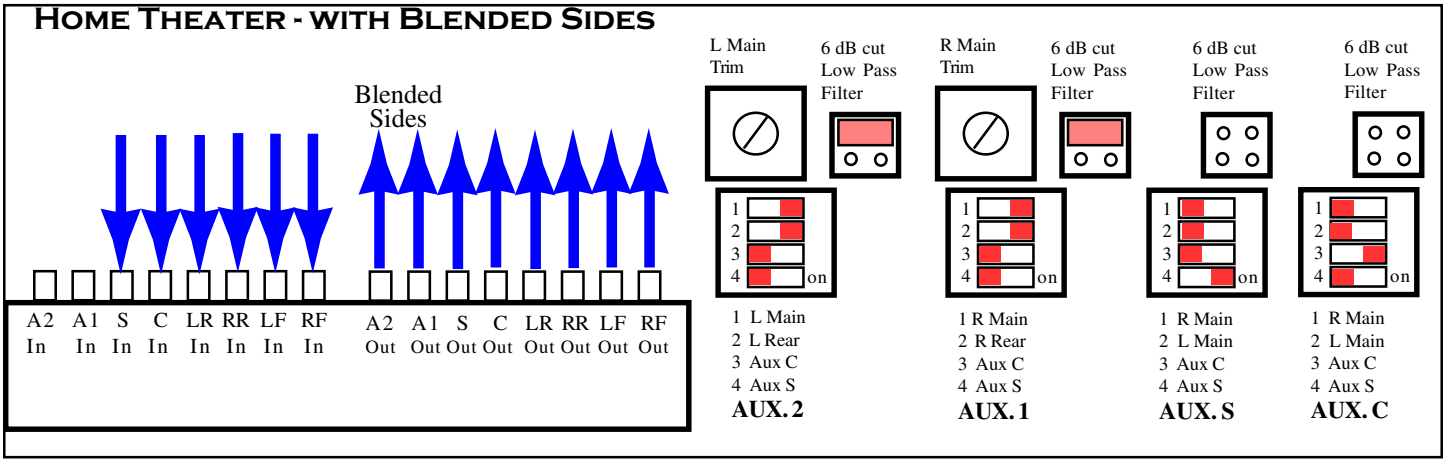
Home theater applications are equally flexible. The basic 6 channels are provided and the extra two can be used for extra subs, center, or sides.



Bass management is always one of the biggest challenges with a home theater system. If the subs are only attached to the sub channel, no bass is heard when a CD is played. The Player allows bass from multiple sources to be blended. In the following case the sub channel is derived from the sub input as well as the bass from both front channels. The AUX outputs are stereo subs from the front R and L blended with the extra sub channel. The mix balance is set using the L and R main trim pot next to the switches.



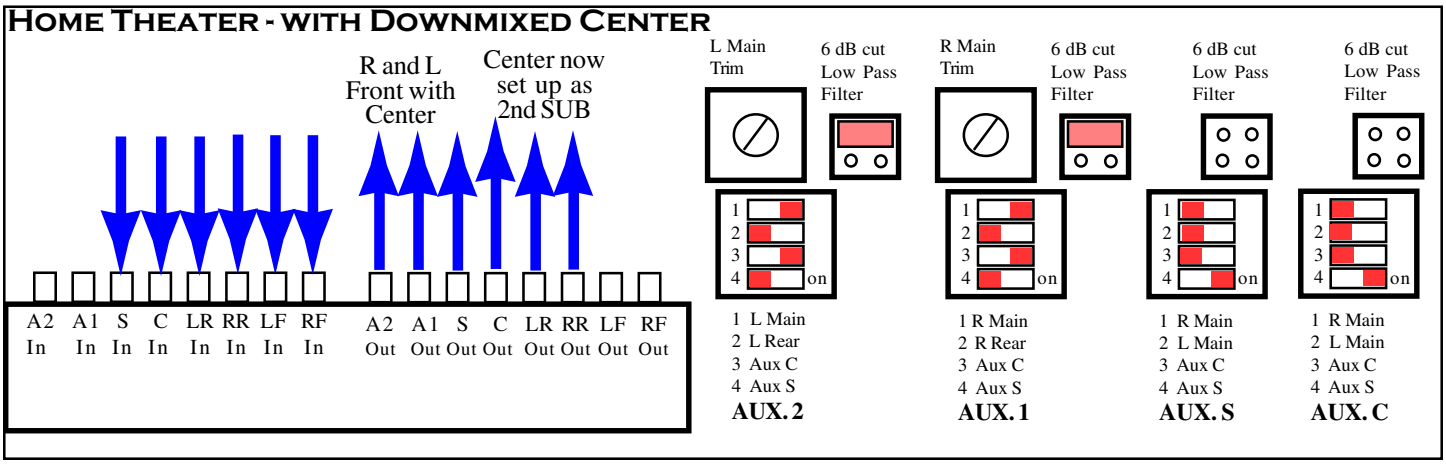
Here side channels are derived from the front and rear on each side. The percent of front and rear are adjusted using the Main Trim pots. The 6 dB cut equalizes the levels.



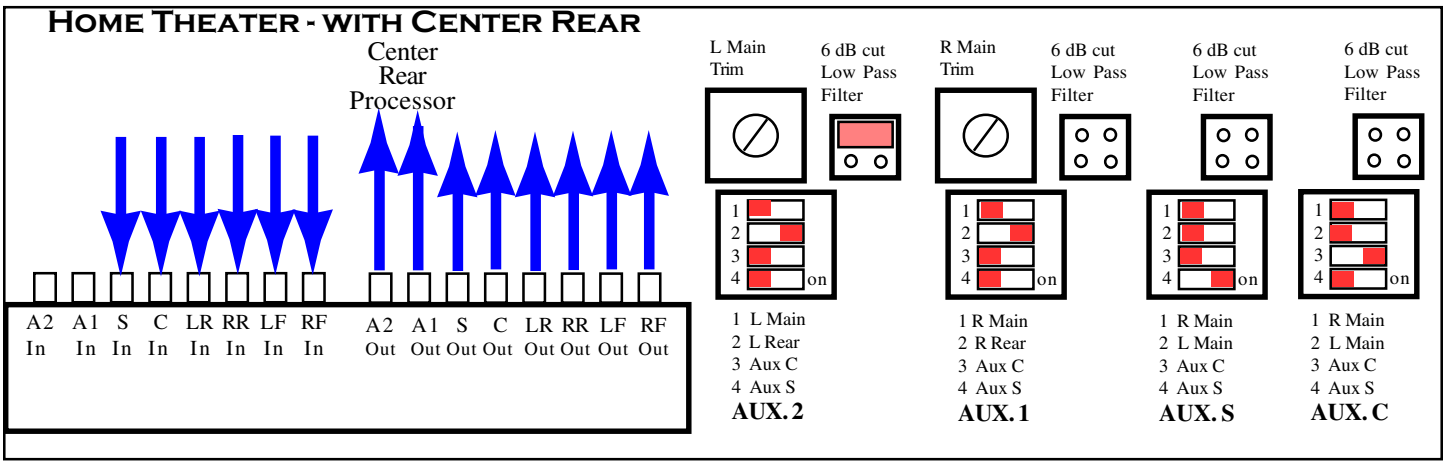
Center Channel Downmixing

Center channel issues are special. The center channel was first developed by Dolby to allow voices to sound like they were coming from the characters in a movie watched on a small TV set. With a stereo system and small TV, the voice track moved back and forth with the action. The sound stage of the audio system was perhaps 6 feet wide but the TV only 2 foot wide. The characters did not stay in the picture. In such a case, a center channel is useful. Now we consider a wide screen home theater with a projector and large screen. Now the audio and video stages match and a center speaker focuses the voices right in the center of the screen even when they are not. In this case elimination of the center speaker is advantageous.

There are two ways to downmix the center channel. First, by going into the Player setup menu, the center speaker can be turned off. The center track is downmixed into the front channels. A better way is by using the AUX channels. The center is blended with the fronts right at the output. The center output is not used and can be used as a second sub channel. The big advantage with this setup, is that the center



level in the blend can be adjusted using the R and L trim pots to set the relitive level of the center in the mix. The disadvantage is that when stereo material is played, the volume will be slightly lower sounding as the center portion is missing. When downmixed digitally in the player, the levels are adjusted automatically.

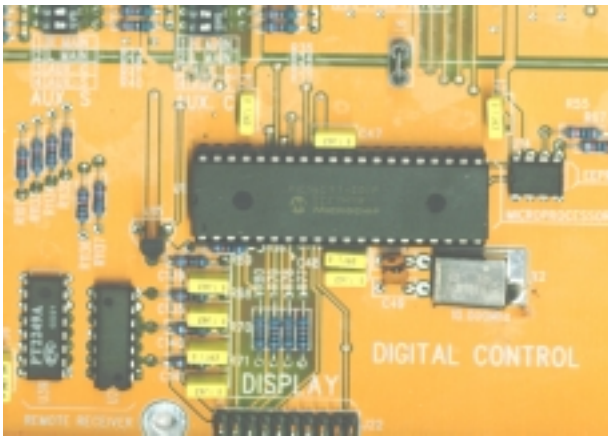


If you purchase an add-on outboard rear center channel processor, the AUX 1 and AUX 2 output can be selected to duplicate the R and L Rear channels and can be hooked up to the processor to create a new trimmable center without changing the rear channels. If you want to run all the rear channels through the outboard box, then the R and L Rears are hooked directly to the outboard processor, and all three new outputs are input to the MVC.

Master Slave MODE

An MSB MVC can be purchased to act in a slave mode. This extends the Players capability and gives you more channels to work with. For example if you have used all the 8 channels and would like three more separately trimable SUB channels, a slave MVC can be hooked up with a simple CAT5 cable, and the SUB as well as A1 and A2 can be configured for SUB outputs. A slave MVC is different than a standard MVC in that it requires a different microprocessor. You may order the MVC in the slave mode or ask for the replacement microprocessor and replace the normal Master. It is a simple matter to replace the chip in its socket.

A slave MVC ignores volume and mute commands it receives directly, but looks only to the MSB Network connector on the back for volume directions. It will always match the master MVC. It is separate, however in setup. You set up the volume trims on the slave unit just like you do on the Player.



Another use is with a balanced outboard DAC like the Platinum DAC II. Because the output is balanced, it cannot be passed through the DVD players volume control. A Platinum MVC which is balanced can be added externally and slaved to the DVD player.

Player Settings using the On Screen Menus

When you switch on the player for the first time, you may either use the Setup Navigator to make more settings, or jump right in and start playing some discs. Before continuing, make sure that you've loaded the batteries in the remote control.

Switching on

After making sure that everything is connected properly and that the player is plugged in, press STANDBY/ON on the remote control to switch the player on. The pass-thorough features and volume control work all the time even when the player is off. When the player is turned on, the front display lights up and discs can be played.

- When the player is in standby, you can use the OPEN/CLOSE and PLAY buttons to switch the player on and open the disc tray/ start playing a loaded disc.
- My DVD player switches on but there is nothing displayed on my TV. Make sure that the TV is set to the correct video input (not a TV channel). For example, if you connected the player to the VIDEO 1 inputs on your TV, switch your TV to VIDEO 1.
- If you connected this player to an AV receiver, make sure that the receiver is switched on and set to the correct input.
- This player features a screen saver. When on, if the player is stopped or paused and no button is pressed for five minutes, the screen saver starts. See Screen saver on page # 32 for how to switch it on.

Using the on-screen displays

For ease of use, this player makes extensive use of graphical on-screen displays (OSDs). You should get used to the way these work as you'll need to use them when setting up the player, using some of the playback features, such as program play, and when making more advanced settings for audio and video.

All the screens are navigated in basically the same way, using the cursor buttons to change the highlighted item and pressing ENTER to select it.

- Throughout this manual, 'Select' means use the Joystick to highlight an item on-screen, then press ENTER.
- Information at the bottom of every OSD screen explains the currently selected menu item and shows which buttons can be used for that screen.

Here are what each navigation button does:

SETUP	Display/exit the on/screen display
(Joystick)	Changes the highlighted menu item
ENTER	Selects the highlighted menu item (both ENTER buttons work in exactly the same way)
(RETURN)	Returns to the previous menu without saving changes

Setting up with the Setup Navigator

Using the Setup Navigator you can make a number of other initial settings for this player. We recommend using the Setup Navigator, especially if you connected this player to an AV receiver for playing surround sound. To answer some of the questions about digital audio formats you may need to look at the instructions that came with your AV receiver.

1. If a disc is playing, press (stop). Also turn on your TV and make sure that it is set to the correct video input.
2. Press SETUP. The on-screen display (OSD) appears.
3. Select 'Setup Navigator'.
4. Select a DVD language. Some DVD discs feature on-screen menus, soundtracks and subtitles in several languages. Set your preferred language here. Note that the language you choose here may not be available on all discs. If you want to select a language other than those listed, select Other Language. See Selecting languages using the language code list on page # 37 for detailed information.
5. Is your TV/monitor compatible with progressive-scan video? Select Compatible, Not Compatible or Don't Know. This setting is only applicable if you used the component video outputs to connect up your TV/monitor.
6. Did you connect this player to an AV receiver? If you selected Not Connected here, that completes the setup. Press ENTER to leave the Setup Navigator.
7. Did you connect the 5.1 channel analog audio outputs to your AV receiver? Select Connected or Not Connected.
8. Did you connect a digital output to your AV receiver? Select Connected or Not Connected. If you selected Not Connected in both steps 7 and 8, that completes the setup. Press ENTER to leave the Setup Navigator. If you selected Connected in step 7, then answer the following questions about the speakers in your system, otherwise jump to step 12.
9. Do you have a center speaker connected to your AV receiver? Select Connected or Not Connected.

10 Do you have surround speakers connected to your AV receiver? Select Connected or Not Connected.

11 Do you have a sub-woofer connected to your AV receiver? Select Connected or Not Connected. If you selected Not Connected in step 8, that completes the setup. Press ENTER to leave the Setup Navigator.

Questions 12 through 15 are concerned with the digital decoding capabilities of your AV receiver.

12 Is your AV receiver Dolby Digital compatible? Select Compatible, Not Compatible or Don't Know.

13 Is your AV receiver DTS compatible? Select Compatible, Not Compatible or Don't Know.

14 Is your AV receiver compatible with 96kHz Linear PCM audio? Select Compatible, Not Compatible or Don't Know.

15 Is your AV receiver MPEG compatible? Select Compatible, Not Compatible or Don't Know.

16 Press ENTER to complete the setup, or press SETUP to quit the Setup Navigator without making any changes.

Congratulations, setup is complete!

Playing discs

The basic playback controls for playing DVD, CD, SACD, Video CD and MP3 discs are covered here. Further functions are detailed in the next chapter. Throughout this manual, the term 'DVD' means DVD-Video, DVD-Audio and DVD-R/RW. If a function is specific to a particular kind of DVD disc, it is specified.

1 If the player isn't already on, press STANDBY/ON on the remote to switch it on. If you're playing a DVD or Video CD, also turn on your TV and make sure that it is set to the correct video input.

2 Press OPEN/CLOSE to open the disc tray.

3 Load a disc. Load a disc with the label side facing up, using the disc tray guide to align the disc. Never load more than one disc at a time.

4 Press (play) to start playback. If you're playing a DVD or Video CD/Super VCD, a menu may appear. If you're playing an MP3 disc, it may take a few seconds before playback starts, depending on the complexity of the file structure on the disc.

Basic playback controls

The list below shows the basic controls on the remote for playing discs. The following chapter covers more playback features in more detail.

(Play) Starts playback. DVD and Video CD; if the display shows RESUME, playback starts from the resume point.

(pause) Pauses a disc that's playing or restarts a paused disc.

(Stop) Stops playback. DVD-Video and DVD-RW and Video CD: Display shows RESUME. Press (stop) again to cancel the resume function (The resume function is also cancelled when you eject the disc tray.)

(<<) Press to start fast reverse scanning. Press (play) to resume normal playback.

(>>) Press to start fast forward scanning. Press (play) to resume normal playback.

(I<<) Skips to the start of the current track or chapter, then to previous tracks/chapters.

(>>I) Skips to the next track or chapter.

Numbers Use to enter a title/group/track number. Press ENTER to select (or wait a few seconds.) If the disc is stopped, playback starts from the selected title/group (for DVD) or track number (for CD/SACD/Video CD/Super VCD/MP3). If the disc is playing, playback jumps to the start of the selected chapter or track (within the current group for DVD-Audio).

Front panel and small remote controls

The (play), (stop), and (pause) buttons on the front panel and small remote work in exactly the same way as their remote control equivalents. The combined scan/skip buttons on the front panel and small remote work slightly differently from the remote buttons (I<< and >>I). Press and hold for fast scan; press for track/chapter skip. You may find with some DVD discs that some playback controls don't work in certain parts of the disc. This is not a malfunction.

DVD disc menus

Many DVD-Video and DVD-Audio discs contain menus from which you can select what you want to watch or listen to. They may give access to additional features, such as subtitle and audio language selection, or special features such as slideshows. See the disc packaging for details. Sometimes menus are displayed automatically when you start playback; others only appear when you press MENU or TOP MENU. Some DVD-Audio discs feature a 'bonus group'. To access this group you have to input a password, which you can find on the disc's packaging. See page 67 for more information.

TOP MENU Displays the 'top menu' of a disc—this varies with the disc.

MENU Displays a disc menu—this varies with the disc and may be the same as the 'top menu'.

(Joystick) Moves the cursor around the screen.

ENTER Selects the current menu option.

(RETURN) Returns to the previously displayed menu screen. On some DVD-Audio discs featuring browsable pictures, press to display the browser screen.

Numbers Highlights a numbered menu option (some discs only). Press ENTER to select (or wait a few seconds.)

FAQ

- **After I load a DVD disc, it ejects automatically after a few seconds!** Most likely, the disc is the wrong region for your player. The region number should be printed on the disc; the player is region 1. If the region number is OK, it may be that the disc is damaged or dirty. Clean the disc and look for signs of damage.
- **Why won't the disc I loaded play?** First check that you loaded the disc the right way up (label side up), and that it's clean and not damaged. If a disc loaded correctly won't play, it's probably an incompatible format or disc type, such as DVD-ROM.
- **There's no picture!** Make sure that if your TV isn't compatible with progressive scan video, that the PROGRESSIVE indicator isn't lit. If it is, connect using composite output and change to interlaced mode.
- **I have a widescreen TV so why are there black bars at the top and bottom of the screen when I play some discs?** Some movie formats are such that even when played on a widescreen TV, black bars are necessary at the top and bottom of the screen. This is not a malfunction.
- **I have a standard (4.3) TV and set the player to show widescreen DVDs in pan & scan format, so why do I still get black bars top and bottom with some discs?** Some discs override the display preferences of the player, so even if you have 4.3 (Pan & Scan) selected, those discs will still be shown in letterbox format. This is not a malfunction.
- **My DVD-Audio disc starts playing, but then suddenly stops!** The disc may have been illegally copied.
- **My CD with MP3 tracks won't play!** Also make sure that the tracks are encoded in MPEG1 audio layer 3 format.
- **Some MP3 tracks don't show up. Where are they?** Filenames that don't end with the extension ".mp3" won't be recognized by this player. Also, if there are more than 250 folders or tracks on the disc, only the first 250 are recognized.
- **There's no audio from the optical/coaxial outputs!** If the IEEE1394 interface is active, the digital audio outputs are switched off.
- **My AV receiver is definitely compatible with 96/88.2kHz Linear PCM audio, but it doesn't seem to work with this player. What's wrong?** For digital copy-protection purposes, some 96/88.2kHz DVD discs only output digital audio downsampled to 48/44.1kHz through the optical and coaxial outputs. This is not a malfunction. To fully take advantage of the high sampling rate audio, either connect the analog audio outputs to your amplifier/receiver or use the MSB Network with an outboard DAC.
- **Why can't I hear SACD audio through the optical/coaxial digital outputs or the MSB Network?** SACD audio is only available through the analog outputs and the IEEE1394 connector. This is not a malfunction. Some DVD-Audio discs too only output audio through the analog outputs, the MSB Network and the IEEE1394 connector.
- **Is it better to listen to DVD-Audio discs through the analog outputs?** Some DVD-Audio discs do not output anything through the digital outputs, and multichannel discs are downmixed to stereo for the optical and coaxial digital outputs. In addition, high sampling rate DVD-Audio discs (96kHz or higher) automatically downsample audio output from the optical/coaxial digital outputs. Using the multichannel analog audio outputs, MSB Network or the IEEE1394 connector for DVD-Audio have none of these limitations.

Playing Discs

Introduction

Most of the features described in this chapter make use of on-screen displays. Many of the functions covered in this chapter apply to DVD and SACD discs, CDs and MP3 discs, although the exact operation of some varies slightly with the kind of disc loaded. Some DVD discs restrict the use of some functions (random or repeat, for example). This is not a malfunction. If you want to use them, start the disc playing using a number button to select a track.

Using the Disc Navigator to browse the contents of a disc

Use the Disc Navigator to browse through the contents of a disc to find the part you want to play. You can use the Disc Navigator when a disc is playing or stopped. It's not possible to use the Disc Navigator when playing a Video CD/Super VCD in PBC mode, or when a DVD disc menu is displayed.

1 Press SETUP and select 'Disc Navigator' from the on-screen display. Alternatively, if a DVD-RW, CD, Video CD/Super VCD or MP3 disc is loaded, you can press MENU, which takes you straight to the Disc Navigator screen.

2 Select what you want to play. Depending on the type of disc you have loaded, the Disc Navigator looks slightly different. For DVD-Video discs select a title, or a chapter within a title. For DVD-Audio discs select a group, or a track within a group. For SACD discs select a track within the current playback area. For a VR mode DVD-RW disc select between the Playlist and Original areas of the disc, or a title. Move the joystick right to preview the title. It's not possible to switch between Original and Playlist during playback. Not all DVD-RW discs have a Playlist. For CDs select a track. For MP3 discs select a folder, or a track within a folder. (Note that if a folder or track name contains accented or non-roman characters, they may show up with generic names – F_033, T_035, etc.). Playback starts after you press ENTER.

· The Disc Navigator is not available unless there is a disc loaded.

· Another way to find a particular place on a disc is to use one of the search modes. See Searching a disc on page # 28.

Scanning discs

You can fast-scan discs forward or backward at various different speeds using the remote.

1 During playback, press (<<) or (>>) to start scanning.

2 Press repeatedly to increase the scanning speed. MP3s can only be scanned at one speed. The scanning speed is shown on-screen.

3 To resume normal playback, press (play).

Sound can be heard while scanning SACDs, audio CDs, and MP3 discs. There is no sound while scanning DVDs and Video CDs, and no subtitles while scanning DVD-Video. Depending on the disc, normal playback may automatically resume when a new chapter is reached on a DVD-Video disc.

Using the Multi Dial

You can use the Multi Dial to control fast and slow motion scanning and frame advance of DVD-Video, DVD-R/RW. When scanning, no audio is output, even when the scanning speed is 1/1 (normal playback speed). To start scanning playback at 1/16 speed, turn the MULTI DIAL (clockwise for forward; anticlockwise for reverse) during playback. Turn the MULTI DIAL in the same direction to increase the scan speed—the speed is indicated at the top left of the screen. Turn in the opposite direction to slow the scan speed/reverse direction.

To start high-speed scanning, turn the MULTI DIAL quickly (clockwise for forward; anticlockwise for reverse) during playback. Change the speed/direction in the same way as above. To resume normal playback, press (right arrow).

To start manual scanning, press JOG (JOG MODE), then use the MULTI DIAL to advance frames in either direction. To switch off jog mode, press JOG (JOG MODE) again. The picture remains paused until you restart playback. To resume normal playback, press (play).

Playing in slow motion

You can play DVD-Videos and DVD-R/RW at four different forward slow motion speeds, and DVD-Videos, DVD-R/RW also at two reverse speeds.

1 During playback, press (pause).

2 Press and hold (<I <II) or (II> I>) until slow motion playback starts. The slow motion speed is shown on-screen. There is no sound during slow motion playback.

3 Press repeatedly to change the slow motion speed. The slow motion speed is displayed on-screen.

4 To resume normal playback, press (play).

You can't use slow motion playback with some titles on some DVDs. The picture quality during slow motion playback is not as good as during normal playback. Depending on the disc, normal playback may automatically resume when a new chapter is reached. For DVD-Audio discs featuring browsable pictures, press (I<< and>>I) to view the previous/next picture.

Frame advance/frame reverse

You can advance or back up DVD-Video or DVD-RW discs frame-by-frame.

1 During playback, press (pause).

2 Press (<I <II) or (II> I>) to reverse or advance a frame at a time.

3 To resume normal playback, press (play).

The picture quality when using frame reverse is not as good as frame advance. Depending on the disc, normal playback may automatically resume when a new chapter is reached. When changing direction of a DVD-Video disc, the picture may 'move' in an unexpected way. This is not a malfunction. For DVD-Audio discs featuring browsable pictures (see Glossary on page 81), press (left arrowI/left arrowII/IIright arrow/Iright arrow) to view the previous/next picture.

Looping a section of a disc

The A-B Repeat function allows you to specify two points (A and B) within a track (DVD-Audio, CD) or title (DVD-Video and DVD-RW) that form a loop which is played over and over. A-B Repeat is not available with SACDs, MP3s in PBC mode, or while a DVD disc menu is being displayed.

1 During playback, press PLAY MODE and select 'A-B Repeat' from the list of functions on the left.

2 Press ENTER on 'A(Start Point)' to set the loop start point.

3 Press ENTER on 'B(End Point)' to set the loop end point. After pressing ENTER, playback jumps back to the start point and plays the loop.

4 To resume normal playback, press CLEAR or select 'Off' from the menu.

Using repeat play

There are various repeat play options, depending on the kind of disc loaded. It's also possible to use repeat play together with program play to repeat the tracks/chapters in the program list (see Creating a program list on page # 27.)

1 During playback, press PLAY MODE and select 'Repeat' from the list of functions on the left.

2 Select a repeat play option. The repeat play options available depend on the type of disc loaded. The following options below appear when different types of discs are loaded.

DVD-Video and DVD-RW discs = Title Repeat, Chapter Repeat, Repeat Off

DVD-Audio discs = Group Repeat, Track Repeat, Repeat Off

SACD, CD = Disc Repeat, Track Repeat, Repeat Off

MP3 discs = Disc Repeat, Folder Repeat, Track Repeat, Repeat Off

If you've made a program list, the Program Repeat option also appears as a repeat option. To stop the disc and cancel repeat play, press (stop). You can also cancel repeat play without stopping playback by pressing CLEAR. The disc will play to the end, then stop.

You can't use repeat and random play at the same time. If you switch camera angle during repeat play, repeat play is canceled.

Using random play

Use the random play function to play titles or chapters (DVD-Video), groups or tracks (DVD-Audio), or tracks (CD and MP3 discs) in a random order. You can set the random play option when a disc is playing or stopped. You can't use random play with SACDs, DVD-RWs, Video CDs/Super VCDs playing in PBC mode, or while a DVD disc menu is being displayed.

1 Press PLAY MODE and select 'Random' from the list of functions on the left.

2 Select a random play option. The random play options available depend on the type of disc loaded.

DVD-Video discs = Random Title, Random Chapter, Random Off

DVD-Audio discs = Random Group, Random Track, Random Off

MP3 and CD discs = On, Off

To stop the disc and cancel random playback, press (stop). You can also cancel random playback without stopping the disc by pressing CLEAR. The disc will play to the end, then stop. During random play, the (I<< arrows and >>I) buttons function a little differently to normal:

(|<<) returns to the beginning of the current track/chapter. You can't go back further than this. (>>|) selects another track/chapter at random from those remaining. You can't use random play together with program or repeat play.

Creating a program list

This feature lets you program the play order of titles/groups/chapters/folders/tracks on a disc. Program play is not available with DVD-RWs playing in PBC mode, or while a DVD disc menu is being displayed.

1 Press PLAY MODE and select 'Program' from the list of functions on the left.

2 Select 'Create/Edit' from the list of program options. The Program edit screen that appears depends on the kind of disc loaded. On the left side is the program list, then to the right is a list of titles (if a DVD-Video disc is loaded), groups (for DVD-Audio), tracks (for SACDs, CDs), or folder names (for MP3 discs). On the far right is a list of chapters (for DVD-Video) or tracks (for DVD-Audio and MP3).

3 Select a title, chapter, group, folder or track for the current step in the program list. For a DVD-Video disc, you can add a whole title, or a chapter within a title to the program list. To add a title, select the title. To add a chapter, first highlight the title, then move the cursor right and select a chapter from the list. For a DVD-Audio disc, you can add a whole group, or a track within a group to the program list. To add a group, select the group. To add a track, first highlight the group, then move the cursor right and select a track from the list. For SACD, CD, select a track to add to the program list. For an MP3 disc, you can add a whole folder, or a track within a folder to the program list. To add a folder, select the folder. To add a track, first find the folder, then move the cursor right and select a track name from the list. After pressing ENTER to select the title/group/chapter/folder/track, the step number automatically moves down one.

4 Repeat step 3 to build up a program list. A program list can contain up to 24 titles/chapters/groups/folders/tracks.

5 To play the program list, press (play). Program play remains active until you turn off program play (see below), erase the program list (see below), eject the disc or switch off the player. To exit the program edit screen without starting playback, press PLAY MODE or SETUP. (Don't press RETURN—your program list will be lost.) During program play, press (>>|) to skip to the next program step. Press CLEAR during playback (though not if the program list OSD is displayed) to switch off program play. Press while stopped to erase the program list.

Editing a program list

After creating a program list, you can add, delete and change steps.

1 Press PLAY MODE and select 'Program' from the list of functions on the left.

2 Select 'Create/Edit' from the list of program options.

3 To clear a step, highlight the step number and press CLEAR.

4 To insert a step in the middle of the program list, highlight the step where you want the new step to appear, then select a title/group/chapter/folder/track to add. After pressing ENTER, the new step is inserted into the list.

5 To add a step to the end of the program list, highlight the next free step then select a title/group/chapter/folder/track to add.

To exit the program edit screen without starting playback, press PLAY MODE or SETUP. If you want to exit the program edit screen without saving the changes you made, press RETURN.

Other functions available from the program menu

As well as creating and editing a program list, you can start and stop program play, erase the program list, and memorize a DVD program list from the Program menu.

1 Press PLAY MODE and select 'Program' from the list of functions on the left.

2 Select a program play function.

· Create/Edit – See Creating a program list.

· Playback Start – Starts playback of the program list

· Playback Stop - Turns off program play, but does not erase the program list

· Program Delete – Erases the program list and turns off program play

· Program Memory (DVD-Video only) – Select On to save the program list for the disc loaded. (Select Off to cancel the program memory for the disc loaded) After saving a program list using the Program Memory feature, whenever you load that disc, the program list is automatically recalled and program play switched on. You can save program lists for up to 24 discs. After that, the oldest one is replaced with the new one saved.

Searching a disc

Using the search mode function from the Play Mode menu you can quickly jump to a particular part of the disc that you're watching or listening to.

1. Press PLAY MODE and select 'Search Mode' from the list of functions on the left. The search options that appear depend on the kind of disc loaded. The screen below shows the DVD-Video search options.
2. Select a search mode.
3. Use the number buttons to enter a title, group, chapter, page, folder or track number, or a time. For a time search, enter the number of minutes and seconds into the currently playing title (DVD-Video/DVD-RW) you want playback to resume from. For example, press 4, 5, 0, 0 to have playback start from 45 minutes into the disc. For 1 hour, 20 minutes and 30 seconds, press 8, 0, 3, 0. Some DVD-Audio discs feature pages of browsable pictures. Enter the page number you want.
4. Press ENTER to start playback. You can only use time search with DVD-Video and Video CD discs. The disc must be playing in order to use time search. You can often select what you want to watch from a DVD disc menu.

Switching subtitles

Some DVD-Video discs have subtitles in one or more languages; the disc box will usually tell you which subtitle languages are available. You can switch subtitle language during playback. Press SUBTITLE repeatedly to select a subtitle option. While the above display is showing, you can also use the joystick (up/down_) and ENTER to select a subtitle language from a drop-down menu. Some discs only allow you to change subtitle language from the disc menu. Press TOP MENU to access. To set subtitle preferences, see Subtitle Language on page # 37.

Switching DVD-Video audio language

When playing a DVD-Video disc recorded with dialog in two or more languages, you can switch audio language during playback. Press AUDIO repeatedly to select an audio language option. With some discs, while the above display is showing, you can also use the joystick (up/down) and ENTER to select an audio language from a drop-down menu. Some discs only allow you to change audio language from the disc menu. Press TOP MENU to access. To set audio-language preferences, see Audio Language on page # 37.

Switching DVD-RW audio channel

When playing a DVD-RW disc recorded with dual-mono audio, you can switch between the main, sub, and mixed channels during playback. Press AUDIO repeatedly to select an audio channel option.

Switching DVD-Audio audio channel

Depending on the disc, you may be able to switch channels when playing DVD-Audio discs—see the disc box for details. Press AUDIO repeatedly to select an audio channel option. When you change the audio channel, playback restarts from the beginning of the current track. Some discs only allow you to change audio channel from the disc menu. Press TOP MENU to access. To set audio language preferences, see Audio Language on page # 37.

Switching CD/MP3 audio channel

You can switch between stereo, just the left channel or just the right channel of a CD/MP3. (To change the audio channel of a CD it must be playing.) Press AUDIO repeatedly to select an audio channel option.

Switching camera angles

Some DVD-Video discs feature scenes shot from two or more angles—check the disc box for details. When a multi-angle scene is playing, a (picture of a camera) icon appears on screen to let you know that other angles are available (this can be switched off if you prefer). During playback press ANGLE to switch angle.

Displaying disc information

Various track, chapter and title information, as well as the video transmission rate for DVD discs, can be displayed on screen. During playback, press DISPLAY to show/switch the information displayed. Keep pressing DISPLAY to change the displayed information.

The # mark displayed with some DVD-Video discs means that the video is playing at 24 frames/second, progressive. When the disc is paused, the display also shows the frame number. You can see disc information (number of titles/chapters, groups, tracks, folders and so on) from the Disc Navigator screen. See Using the Disc Navigator to browse the contents of a disc.

The Audio Settings Menu

This player comes equipped with a number of specialized audio settings. These are generally considered by most audio enthusiasts to be inferior to pure sound. As a result, these settings can only be accessed using either the line level outputs (not recommended) or the SP-DIFF digital audio outputs. They do not effect the MSB Network, IEEE 1384 or volume controlled analog audio outputs. To access these settings press SETUP and select 'Audio Settings' from the on-screen display. Use the Joystick to highlight and select the options.

Audio DRC (Default setting: Off)

When watching Dolby Digital DVDs at low volume, it's easy to lose the quieter sounds completely—including some of the dialog. Switching Audio DRC (Dynamic Range Control) to On can help by bringing up the quieter sounds, while controlling loud peaks. How much of a difference you hear depends on the material you're listening to. If the material doesn't have wide variations in volume, you may not notice much change. Audio DRC is only effective with Dolby Digital audio sources. Audio DRC is only effective through the digital output when Digital Out is set to On, and Dolby Digital Out is set to Dolby Digital>PCM. The effect of Audio DRC depends on your speakers and AV receiver settings.

Legato PRO (Default setting: Off)

LegatoPRO technology manipulates the audio data to try and reveal more high-frequency detail in CDs and DVDs. There are four settings, plus Off. They are: Standard – gives the sound a more forward, live feel; Effect 1 – bright and lively; Effect 2 – soft; Effect 3 – solid and well-balanced. The LegatoPRO digital filter affects mainly frequencies outside of the audible range. Depending on the listening conditions, you may find the effect of Legato PRO difficult to hear. The LegatoPRO effect is applied only to the front left/right channels. LegatoPRO does not work with 192kHz DVD-Audio discs, or with SACDs.

Hi-Bit (Default setting On)

The Hi-Bit feature attempts to extends the effective dynamic range of the front left/right channels from 16 or 20-bit to 24-bit to reveal more detail in low-level sounds.

Virtual Surround (Default setting Off)

Switch on Virtual surround to enjoy surround sound effects from just two speakers. When you play a Dolby Digital soundtrack, Virtual Dolby Digital, which uses TruSurround technology from SRS, produces a deep, realistic 3D soundspace from a pair of stereo speakers. You can also use the SURROUND button on the remote control to switch Virtual Surround on and off. Virtual Surround does not work with CD, MP3, DVD-Audio or SACD discs, or 96kHz Linear PCM soundtracks. The Virtual Surround effect is output only through the line level analog outputs. Make sure that Audio Output Mode is set to 2 Channel. How good the surround effect is varies with the disc.

Channel Level (Default setting: Fix)

This setting allows you to set the level of each channel sent to the line level 5.1 channel analog outputs only. Channel levels can be set from –6 dB to +6 dB. in 0.5 dB increments. You can't adjust the channel level for any speakers that are set to Off in the Speaker Installation menu screen. The Fix setting is equivalent to setting all the channel levels to +6 dB. Therefore, the Variable setting will usually sound quieter than the Fix setting.

Speaker Distance (Default setting: all speakers 10 ft./3 m)

To get the best surround sound from your system, you should set up the speaker distances from your listening position. Front left/right (L/R) speaker distances can be set from 1 ft./30 cm to 30 ft./9 m in 0.5 ft/10 cm. increments. The center speaker (C) and subwoofer (SW) can be set from –6.5 ft./-2 m to +6.5 ft./2 m relative to the front left/right speakers. Surround left/right (LS/RS) speakers can be set from –20 ft./ -6 m to +6.5 ft./2 m relative to the front left/right speakers. When you adjust the front left (L) or front right (R) speaker, all the other speaker distances are adjusted relative to that speaker. The speaker distance settings have no effect on SACD playback. The channel level settings, however, do apply.

The Video Settings Menu

Video Adjust (Default setting: Professional)

1 Press SETUP and select 'Video Adjust' from the on-screen display. You can also access these settings by pressing V.ADJ (VIDEO ADJUST).

2 Use the joystick (left/right) to select a preset.

- TV (CRT) – Optimized display for a regular CRT TV
- PDP – Optimized for a plasma display screen
- Professional – Optimized for a professional video monitor

- Memory 1-3 – Use for saving your own presets (see below)

3 Press ENTER to make the setting and exit the Video Adjust Screen.

Depending on the disc and the TV/monitor, you may not see the effect clearly.

Creating your own presets

You can create up to three presets of your own.

1 Select one of the Memory presets (see above).

2 Move the joystick down to select 'Detailed Settings' then press ENTER.

3 Adjust the picture quality settings.

- Use the joystick (up/down) to select a setting.
- Use the joystick (left/right) to adjust the current setting.
- Press DISPLAY to switch between full and single view.
- You can change the preset number from the Recall Settings menu item.

You can adjust any or all of the following picture quality settings:

- Prog. Motion – Adjusts the motion and still picture quality when the player is set to progressive video output.
- PureCinema – When watching DVD movies, PureCinema optimizes the picture quality. The default setting is Auto 1, but if the picture appears unnatural, then set to Auto 2, On or Off, as appropriate.
- YNR – Adjusts the amount of noise reduction in the Y (brightness) part of the video signal.
- CNR – Adjusts the amount of noise reduction in the C (color) part of the video signal.
- MNR – Adjusts the amount of mosquito noise (artifacts visible around the edge of an image caused by MPEG compression) reduction.
- BNR – Adjusts the amount of block noise (artifacts visible in areas of the color caused by MPEG compression) reduction.
- Sharpness High – Adjusts the sharpness of the high-frequency (detailed) elements in the picture.
- Sharpness Mid – Adjusts the sharpness of the mid-frequency (less detailed) elements in the picture.
- Detail – Adjusts the sharpness of edges in the picture.
- White Level – Adjusts the intensity of white.
- Black Level – Adjusts the intensity of black.
- Black Setup – Setup to correct the floating black color for better 3-dimensional realism.
- Gamma – Adjusts the brightness of darker images.
- Hue – Adjusts the overall color balance between red and green.
- Chroma Level – Adjusts how saturated colors appear.
- Chroma Delay – Adjusts to correct the gap between the Y and C components in the video signal.

4 Press ENTER to save the preset and exit the Video Adjust screen.

Video on a DVD disc may be either video material (originally shot on video) or film material (originally shot on film). Video material has a frame rate of 30 frames/sec.(NTSC), compared with 24 frames/sec. for film. This player converts film material to 60 frames/sec. (in progressive scan mode). PureCinema adjusts the picture so that it matches more closely the picture quality of a cinema screen. You can see whether video on a DVD disc is film or video material by displaying the video transmission rate. If a hash mark (#) appears next to the transmission rate display, it is film material.

Using the Initial Settings menu

The Initial Settings menu is where you can set preferences for language, audio and video output, and so on. If a menu option is grayed out it means that it cannot be changed at the current time. This is usually because a disc is playing. Stop the disc, then change the setting. Press SETUP and select 'Initial Settings' from the on-screen display. Select the setup category from the list on the left, then select an item from the menu list to the right. Make the setting you want.

Digital Audio Out settings

None of the Digital Audio Out settings affect the audio output from the IEEE1394 interface or the MSB network output.

Digital Out (Default setting: On)

This setting must be left ON at all times. There is no digital output when playing SACDs and some DVD-Audio discs regardless of this setting. This setting is important for future compatibility with 44.1 kHz DVD-Audio discs which may be released with the digital output enabled. In such a rare case, the digital output should be manually turned off to assure proper sound.

Dolby Digital Out (Default setting: Dolby Digital)

You only need to make this setting if you connected this system to an AV receiver (or other component) using one of the digital outputs. If your AV receiver (or other connected component) is Dolby Digital compatible, set to Dolby Digital, otherwise set to Dolby Digital>PCM. The output will be downmixed 2 Channel stereo.

DTS Out (Default setting: DTS>PCM)

You only need to make this setting if you connected this system to an AV receiver (or other component) using one of the digital outputs. If your AV receiver (or other connected component) has a built-in DTS decoder, set this to DTS, otherwise set to DTS>PCM (DTS audio is converted to more compatible PCM audio). Check the manual that came with the other component if you're unsure whether it is DTS compatible. If you set to DTS with a non-DTS compatible amplifier, noise will be output when you play a DTS disc. This setting applies only to DTS audio on DVDs. DTS-CD always output DTS digital audio as-is regardless of this setting.

Linear PCM Out (Default setting: Down Sample On)

You only need to make this setting if you connected this system to an AV receiver (or other component) using one of the digital outputs. If your AV receiver (or other connected component) is compatible with high sampling rates (96 hKz), set this to Down Sample Off, otherwise set it to Down Sample On (96 hKz audio is converted to a more compatible 48 hkz). Check the manual that came with the other component if you're unsure whether it is 96 kHz compatible. Even when set to Down Sample Off, some discs will still output down-sampled audio through the digital outputs (you only get full sampling rate audio through the analog outputs and MSB Network). High sampling rate DVD-Audio discs (192kHz or 176.2kHz) automatically output down-sampled audio through the digital outputs.

MPEG Out (Default setting: MPEG>PCM)

You only need to make this setting if you connected this system to an AV receiver (or other component) using one of the digital outputs. If your AV receiver (or other connected component) is compatible with MPEG audio, set this to MPEG, otherwise set it to MPEG>PCM (MPEG audio is converted to more compatible PCM audio). Check the manual that came with the other component if you're unsure whether it is MPEG audio compatible.

Video Output settings

TV screen (Default setting: 16.9 (Wide))

If you have a widescreen TV, select the 16.9 (Wide) setting—widescreen DVD software is then shown using the full screen area. When playing software recorded in conventional (4:3) format, the settings on your TV will determine how the material is presented—see the manual that came with your TV for details on what options are available. When set to 16.9 (Compressed), progressive scan 4:3 material is shown with black bars on either side of the screen. If you have a conventional TV, select either 4:3 (Letter Box) or 4:3 (Pan&Scan). In Letter Box mode, widescreen software is shown with black bars at the top and bottom of the screen. Pan & Scan chops the sides off widescreen material to make it fit the 4:3 screen (so even though the image looks larger on the screen, you're actually seeing less of the picture).

Component Out (Default setting: Interlace)

You only need to make this setting if you connected this player to your TV using the component video outputs. If you have a progressive-scan compatible TV, set this to Progressive for flicker-free video output. If your TV is not compatible with progressive-scan video, set to Interlace. Check the operating instructions that came with your TV if you're unsure about its compatibility.

S-Video Out (Default setting: S2)

You only need to make this setting if you connected this player to your TV using an S-Video cord. If you find that the picture is stretched or distorted on the default S2 setting, try changing it to S1. (See also S1 and S2 in the Glossary on page # 38.)

Still Picture (Default setting: Auto)

This player uses one of two processes when displaying a still frame from a DVD disc. The default Auto setting automatically chooses the best setting each time. Field – produces a stable, generally shake-free image. Frame – produces a sharper image, but more prone to shake than field stills.

Language settings

Audio Language (Default setting: English)

This setting is your preferred audio language for DVD-Video discs. If the language you specify here is recorded on a disc, the system automatically plays the disc in that language. The DVD-video format recognizes 136 different languages. Select Other Language if you want to specify a language other than those listed. See also Selecting languages, using the language code list on page # 37. You can switch between the languages recorded on a DVD disc during playback using the AUDIO button. (This does not affect this setting.) Some DVD discs set the audio language automatically when loaded, overriding the audio language you set in the initial Settings menu. Discs with two or more audio languages usually allow you to select the audio language from the disc menu. Press TOP MENU to access the disc menu.

Subtitle Language (Default setting: English)

This setting is your preferred subtitle language for DVD-Video discs. If the language you specify here is recorded on a disc, the system automatically plays the disc with those subtitles. The DVD-Video format recognizes 136 different languages. Select Other Language if you want to specify a language other than those listed. See also Selecting languages using the language code list on page # 37. You can change or switch off the subtitles on a DVD disc during playback using the SUBTITLE button. (This does not affect this setting.) Some DVD discs set the subtitle language automatically when loaded, overriding the subtitle language you set in the Initial Settings menu. Discs with two or more subtitle languages usually allow you to select the subtitle language from the disc menu. Press TOP MENU to access the disc menu.

Auto Language (Default setting: On)

When set to On, the player always selects the default audio language on a DVD-Video disc (French dialog for a French movie, for example), and displays subtitles in your preferred subtitle language only if that is set to something different. In other words, movies in your native language won't have any subtitles, while foreign language movies will be shown with subtitles. Set to Off to have the player play discs strictly according to your Audio Language and Subtitle Language settings. For Auto Language to work, the Audio Language and Subtitle Language settings must be the same. You can still switch audio and subtitle language on playback using the AUDIO and SUBTITLE buttons.

DVD Menu Language (Default setting: w/Subtitle Lang.)

Some multilingual discs have disc menus in several languages. This setting specifies in which language the disc menus should appear. Leave on the default setting for menus to appear in the same language as your Subtitle Language. The DVD-Video format recognizes 136 different languages. Select Other Language if you want to specify a language other than those listed. See also Selecting languages using the language code list on page # 37.

Subtitle Display (Default setting: On)

When set to On, the player displays subtitles according to the Subtitle Language and Auto Language settings. Set to Assist Subtitle to have the player display the extra assistive subtitles recorded on to some DVD discs. Set to Off to switch subtitles off altogether.

Display settings

OSD Language (Default setting: English)

This sets the language of this player's on-screen displays.

On Screen Display (Default setting: On)

This sets whether operation displays are shown on-screen. (Play, Resume, Scan and so on.)

Angle Indicator (Default setting: On)

If you prefer not to see the camera icon on-screen during multi-angle scenes on DVD discs, change this setting to Off.

Background (Default setting: Black)

This specifies what is displayed on-screen when the player is stopped.

Screen Saver (Default setting: Off)

If a constant image is displayed on a conventional CRT-type TV, it can 'burn in' leaving a ghost image on the screen. Switch to On to make sure that a constant image is not displayed for a dangerously long time.

Options

Parental Lock (Default level: Off, Default password: none, Default country code: us (2119))

Some DVD Video discs feature a Parental Lock level. If your player is set to a lower level than the disc, the disc won't play. This gives you some control over what your children watch on your DVD player. Some discs also support the Country Code feature. The player does not play certain scenes on these discs, depending on the country code you set. Before you can set the Parental Lock level or the Country Code you must register a password. As the password owner, you can change the Parental Lock level or Country Code whenever you like. You can also change the password. Not all discs that you may consider inappropriate for your children use the Parental Lock feature. These discs will always play without requiring the password first. If you forget your password, you'll need to send the player back to the factory to be reset, then register a new password.

You must register a password before you can change the Parental Lock level or enter a Country Code.

1 Select 'Password'.

2 Use the number buttons to enter a 4-digit password.

3 Press ENTER to register the password and return to the Options menu screen.

If you forget your password, you can reset the system, then register a new one. To change your password, confirm your existing password, then enter a new one.

1 Select 'Password Change'.

2 Use the number buttons to enter your existing password, then press ENTER. The numbers appear as asterisks as you enter them.

3 Enter a new password.

4 Press ENTER to register the new password and return to the Options menu screen.

Setting/changing the Parental Lock level

1 Select 'Level Change'.

2 Use number button to enter your password, then press ENTER.

3 Select a new level. Move the joystick left to lock more levels (more discs will require the password); move right to unlock levels. You can't lock level 1.

4 Press ENTER to set the new level and return to the Options menu screen.

Setting/changing the Country Code

You may also want to refer to the Country Code list on page #37.

1 Select 'Country Code'.

2 Use number buttons to enter your password, then press ENTER.

3 Select a country code. There are two ways you can do this. Select by code letter: Use the joystick (up/down) to change the Country Code. Select by code number: Move the joystick right then use the number buttons to enter the 4-digit Country Code.

4 Press ENTER to set the new Country Code and return to the Options menu screen. Changing the Country Code does not take effect until the next disc is loaded (or the current disc is reloaded).

Bonus Group

Some DVD-Audio discs have an extra 'bonus' group that requires a 4-digit key number to access. See the disc packaging for details and the key number. When you play a DVD-Audio disc that has a bonus group, the key number input screen appears automatically. You can also access the same screen here. If you eject the disc, switch the power off, or unplug the player, you will need to re-enter the key number.

Auto Disc Menu (Default setting: On)

This specifies whether the menu (Top menu) is automatically displayed after loading a disc. Set to On if you want the menu displayed automatically, or Off if you don't want it displayed. Some DVD discs display a menu automatically regardless of this setting. If you press (play) while a disc is loading, this setting is ignored.

Group Playback (Default setting: Single)

DVD-Audio discs can have up to 9 groups of tracks. When set to Single, the selected group plays and then the disc stops, or returns to the menu screen. Use Group Search to select the group to play. (You cannot use the track skip (|<</ >>|) or scan buttons (<</>>) in this mode.) Set to All if you want to play all the groups on a disc consecutively. Even if the player is set to All but you select a group to play from the disc menu, only that group will play. If you stop playback, all groups will play again when you restart playback.

DVD Playback Mode (Default setting: DVD-Audio)

Some DVD-Audio discs contain DVD-Video content in addition to the DVD-Audio. Set to DVD-Audio to play a DVD-Audio disc as if it were a DVD-Video disc. Note that in this case only the DVD-Video part of the disc will play. This setting reverts to DVD-Audio (Default) when the disc tray is opened, or the power is switched into standby.

SACD Playback (Default setting: 2ch Area)

SACD discs can be divided up into several different areas—stereo audio (2ch Area), multi-channel audio (Multi-ch Area) and, for hybrid SACDs, standard CD audio (CD Area). Select which you want to listen to. For multi-channel audio from the IEEE1394 and all analog outputs, SACD playback must be set to Multi-ch Area. If you select an area that isn't on the disc loaded, a different area of the disc will play. For example, if you choose standard CD audio but the disc loaded is not a hybrid SACD, the stereo SACD audio will play.

CD Playback (Default setting: PCM Playback)

The IEEE1394 audio output or the main volume controlled outputs are not affected by this setting.

When set to PCM Playback, playback is optimized for standard audio CDs. You can also play DTS CDs, however you may notice some noise when a DTS CD starts playing. This is not a malfunction. When set to DTS CD Playback, playback is optimized for DTS CDs. In this mode you cannot play standard audio CDs through the analog outputs. Change the setting back to PCM Playback to play standard CDs.

Speakers

Audio Output Mode (Default: 2 Channel)

If you connected this player to a system which is multi channel, set this to 5.1 Channel. This will enable you to enjoy multichannel sound. If you connected only the stereo analog outputs, set to 2 Channel. On this setting multichannel audio is downmixed to 2 channels for stereo analog output, MSB Network and IEEE1394 output (digital output from the optical and coaxial jacks is not affected by this setting). When set to 5.1 Channel, you'll only get sound from all speakers when playing multichannel discs. When set to 5.1 Channel there is no optical/coaxial digital output when playing DVD-Audio discs. Some DVD-Audio discs don't allow down-mixing of audio. These discs always output multi-channel audio regardless of the setting made here. A better solution in this case is to downmix using the switch settings in the volume control. In this case always leave the setting to 5.1 channel. (See page # 34 for setup).

Speaker Installation (default: L/R: Large | C:Large | LS/RS: Large | SW: On)

You only need to make this setting if you connected this player to your amplifier using the 5.1 channel analog outputs or MSB Network output. This setting does not affect the digital audio output. Use the Speaker installation screen to tell the player what kinds of speakers you have connected.

1. Use the joystick to move the cursor up/down to select a speaker. The L and R, and RS and LS speakers are paired; you can't set them differently.
2. Move the cursor right to modify the selected speaker.
3. Use the joystick (up/down) to change the current setting. You can see the effect of your changes in the room graphic on the right of the screen. Except for the subwoofer, you can set speaker size to Large or Small. If the main speaker cone in the speaker is 12cm or more, set to Large, otherwise set to Small (or Off if you don't have that speaker). If you set the front L and R speakers to Small, the center and surround speakers are automatically set to Small and the subwoofer to On. The subwoofer can only be set to On or Off.
4. Move the joystick left to go back to the speaker list if you want to modify another speaker, or press ENTER to exit the Speaker Installation screen.

If you have more than 6 speakers, you can set up the two extra audio outputs as shown on page # 18.

Speaker Distance (Default setting: all speakers 10 ft./3 m)

You only need to make this setting if you connected this player to your amplifier using the 5.1 channel analog or MSB Network outputs. These settings do not affect the digital audio output. To get the best surround sound from your system, you should set up the speaker distances from your listening position.

1. Use the joystick to move the cursor up/down to select a speaker. The L and R speakers are paired; you can't set them differently.
2. Move the cursor right to change the speaker distance for the highlighted speaker.
3. Use the joystick (up/down) to change the distance. When you change the distance settings of the front left (L) or front right (R) speakers, all the other speaker distances change relative to it. Front left/right (L/R) speaker distances can be set from 1 ft./30 cm to 30 ft./9 m in 0.5 ft./10 cm. increments. The center speaker (C) and subwoofer (SW) can be set from –6.5 ft./-2 m to +6.5 ft./2 m relative to the front left/right speakers. Surround left/right (LS/RS) speakers can be set from –20 ft./-6 m to +6.5 ft./2 m relative to the front left/right speakers.
4. Move the cursor left to go back to the speaker list if you want to modify another speaker, or press ENTER to exit the Speaker Distance screen. Speaker Distance settings do not affect SACD playback.

Channel Level (Default setting: Fix)

You only need to make this setting if you connected this player to your amplifier using the 5.1 channel line level analog outputs. This is not recommended. These settings do not affect any digital audio output. When set to Fix, the level of each of the 5.1 channel analog outputs is fixed. Choose Variable if you want to adjust the relative levels to balance the surround sound better for your listening room. You can set the individual channel levels between –6dB and +6dB in 0.5 dB increments using the test tone output as a guide to set the correct levels. Adjust the levels until the output level from all channels sounds the same from your usual listening position. Note that Audio Output Mode must be set to 5.1 Channel in order to use the test tone.

Automatic: Select Auto to start the test tone output. As the test tone plays through each speaker in turn, it is highlighted on screen. Use the joystick (up/down) to adjust the channel output level of the current speaker. Move the joystick left to exit the test tone sequence, or ENTER to save the settings and exit the channel level setting screen.

For normal operations, use the trim settings of the 8 channel volume control. See page # 18.

IEEE1394 Setup

Audio Out (Default setting: On)

You only need to make this setting if you connected this player to other equipment using the IEEE1394 interface. Change this setting to Off if the IEEE1394 interface is still connected but you need to use one of the other outputs. Changing this setting to Off does not affect IEEE1394 thru data (ie., if this player is between two other IEEE1394 components, it will still pass data between them). Set back to On (IEEE1394-ready) to be able to use the IEEE1394 interface.

Connections Setup

You only need to make this setting if you connected this player to other equipment using the IEEE1394 interface. This screen shows the equipment connected using the IEEE1394 interface. Components which are able to receive IEEE1394 Audio are shown in black (an IEEE1394 receiver, for example); those which can't (a DV camcorder, for example) are shown in gray. If the player can't display the name of a component, '****' is shown; if the name can't be determined, Unknown is displayed. Select the component that you want to set up the audio output formats for. This screen shows the output settings for Dolby Digital, DTS and MPEG audio. Depending on the other component, these may be configured automatically. If this player can't determine the appropriate settings, the defaults are Dolby Digital, DTS and PCM. If you need to change the settings, press (right arrow) (cursor right) and make the new setting.

Auto Select Play (Default setting: Off)

You only need to make this setting if you connected this player to other equipment using the IEEE1394 interface. Using this setting you can specify up to five receivers to automatically switch input function to this player when you start playback of a disc. Highlight a receiver from the list and press ENTER. The most recently selected component is marked with an orange box (square box). The IEEE1394 output when playing Dolby Digital, DTS or MPEG discs will be as set for this component (see also Connections Setup above).

Select Off to reset all the settings. When the IEEE1394 connections are changed, an update screen appears. Press ENTER to return to the menu screen. Whether a receiver from the list has been selected or not, this player will start playback when you change the input function of the receiver to this player. Note that some AV receivers may not be compatible with this feature.

Additional Information

Handling discs

When handling discs of any type, take care not to leave fingerprints, dirt or scratches on the disc surface. Hold the disc by its edge or by the center hole and edge. Damaged or dirty discs can affect playback performance. Take care also not to scratch the label side of the disc. Although not as fragile as the recorded side, scratches can still result in a disc becoming unusable. Should a disc become marked with fingerprints, dust, etc., clean using a soft, dry cloth, wiping the disc lightly from the center to the outside edge. Wipe lightly from the center of the disc using straight strokes. Don't wipe the disc surface using circular strokes. If necessary, use a cloth soaked in alcohol, or a commercially available CD/DVD cleaning kit to clean a disc more thoroughly. Never use benzine, thinner or other cleaning agents, including products designed for cleaning vinyl records.

Storing discs

Although CDs and DVD discs are more durable than vinyl records, you should still take care to handle and store discs correctly. When you're not using a disc, return it to its case and store upright. Avoid leaving discs in excessively cold, humid, or hot environments (including under direct sunlight). Don't glue paper or put stickers onto the disc, or use a pencil, ball-point pen or other sharp-tipped writing instrument. These could all damage the disc. For more detailed care information see the instructions that come with discs. Do not load more than one disc into the player at a time.

Discs to avoid

Discs spin at high speed inside the player. If you can see that a disc is cracked, chipped, warped, or otherwise damaged, don't risk using it in your player—you could end up damaging the unit. This unit is designed for use with conventional, fully circular discs only. Use of shaped discs is not recommended for this product. We disclaim all liability arising in connection with the use of shaped discs.

Screen sizes and disc formats

DVD-Video discs come in several different screen aspect ratios, ranging from TV programs, which are generally 4:3, to CinemaScope widescreen movies, with an aspect ratio of up to about 7:3. Televisions, too, come in different aspect ratios: 'standard' 4:3 and widescreen 16:9.

Widescreen TV users

If you have a widescreen TV, the TV Screen setting of this player should be set to 16:9(Wide). When you watch discs recorded in 4:3 format, you can use the TV controls to select how the picture is presented. Your TV may offer various zoom and stretch options; see the instructions that came with your TV for details. Please note that some movie aspect ratios are wider than 16:9, so even though you have a widescreen TV, these discs will still play in a 'letterbox' style with black bars at the top and bottom of the screen. If you have a progressive-scan compatible widescreen TV, you can choose 16:9(Compressed). This setting displays 4:3 material with black bars either side of the picture.

Standard TV users

If you have a standard TV, the TV Screen setting (page 60) of this player should be set to 4:3 (Letter Box) or 4:3 (Pan&Scan), depending on which you prefer. Set to 4:3 (Letter Box), widescreen discs are shown with black bars top and bottom. Set to 4:3 (Pan&Scan), widescreen discs are shown with the left and right sides cropped. Although the picture looks larger, you don't actually see the whole picture. Please note that many widescreen discs override the player's settings so that the disc is shown in letterbox format regardless of the setting. Using the 16.9 (Wide) setting with a standard 4:3 TV, or either of the 4:3 settings with a widescreen TV, will result in a distorted picture.

Watching NTSC on a PAL TV

Most models of the newly developed countdown PAL TV system detect 50 Hz (PAL)/60 Hz (NTSC) and automatically switch vertical amplitude, resulting in a display without vertical shrinkage. If your PAL TV does not have a V-Hold control, you may not be able to watch NTSC discs because of picture roll. If the TV has a V-Hold control, adjust it until the picture stops rolling. On some TVs, the picture may shrink vertically, leaving black bands at the top and bottom of the screen. This is not a malfunction; it is caused by the NTSC to PAL conversion.

About the audio output settings

The table below shows how the audio settings you make in the Digital Audio Out and Audio Output Mode screens affect the output from the various outputs with various types of disc. The PCM CONVERT column shown is with the Dolby Digital > PCM, MPEG > PCM or DTS > PCM setting. Note that some DVD-Audio discs prohibit downmixing and turn off the PCM Digital outputs.

Audio Format	Player Setting	Volume controled Analog	Line level outputs	MSB Network	Digital Out with PCM convert	Digital out with Bitstream
Dolby Digital	2 Ch 5.1 Ch	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix	Dolby Digital
DTS	2 Ch 5.1 Ch	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix	DTS
DVD-Audio	2 Ch 5.1 Ch	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix	2 ch downmix
SACD	2 Ch 5.1 Ch	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	-	-	-
DTS CD	2 Ch 5.1 Ch	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	2 ch downmix 6 Ch out	DTS	DTS
CD	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	Left/Right
Dolby Digital Karaoke	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	Dolby Digital
DVD with PCM	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	Left/Right
MPEG	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	MPEG
DVD RW	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	Dolby Digital, MPEG or PCM
Video CD / Super VCD	2 Ch/5.1 Ch	Left/Right	Left/Right	Left/Right	Left/Right	Left/Right

Language code list

Language code list	Japanese (ja), 1001	English (en) 0514	French (fr), 0618	Germany (de), 0405	Italian (it), 0920	Spanish (es), 0519
Chinese (zh), 2608	Dutch (nl), 1412	Portuguese (pt), 1620	Swedish (sv), 1922	Russian (ru), 1821	Korean (ko), 1115	Greek (el), 0512
Afar (aa), 0101	Abkhazian (ab), 0102	Afrikaans (af), 0106	Amharic (am), 0113	Arabic (ar), 0118	Assamese (as), 0119	Aymara (ay), 0125
Azerbaijani (az), 0126	Bashkir (ba) 0201	Bylorussian (be) 0205	Bulgarian (bg) 0207	Bihari (bh) 0208	Bislama (bi) 0209	Bengali (bn) 0214
Tibetan (bo) 0215	Briton (br) 0218	Catalan (ca) 0301	Corsican (co) 0315	Czech (cs) 0319	Welsh (cy) 0325	Danish (da) 0401
Bhutani (dz) 0426	Esperanto (eo) 0515	Estonian (et) 0520	Basque (eu) 0521	Persian (fa) 0601	Finnish (fi) 0609	Fiji (fj) 0610
Faroese (fo) 0615	Frisian (fy) 0625	Irish (ga) 0701	Scots-gaelic (gd) 0704	Galician (gl) 0712	Guarani (gn) 0714	Gujarati (gu) 0721
Hausa (ha) 0801	Hindi (hi) 0809	Croatian (hr) 0818	Hungarian (hu) 0821	Armenian (hy) 0825	Interlingua (ia) 0901	Interlingue (ie) 0905
Inupiak (ik) 0911	Indonesian (in) 0914	Icelandic (is) 0919	Hebrew (iw) 0923	Yiddish (ji) 1009	Javanese (jw) 1023	Georgian (ka) 1101
Kazakh (kk) 1111	Greenlandic (kl) 1112	Cambodian (km) 1113	Cannada (kn) 1114	Kashmiri (ks) 1119	Kurdish (ku) 1121	Kirghiz (ky) 1125
Latin (la) 1201	Lingala (ln) 1214	Laotian (lo) 1215	Lithuanian (lt) 1220	Latvian (lv) 1222	Malagasy (mg) 1307	Maori (mi) 1309
Macedonian (mk) 1311	Malayalan (ml) 1312	Mongolian (mn) 1314	Moldavian (mo) 1315	Marathi (mr) 1318	Malay (ms) 1319	Maltese (mt) 1320
Burmese (my) 1325	Nauru (na) 1401	Nepali (ne) 1405	Norwegian (no) 1415	Occitan (oc) 1503	Oromo (om) 1513	Oriya (or) 1518
Panjabi (pa) 1601	Polish (pl) 1612	Pashto, Pushto (ps) 1619	Quechua (qu) 1721	Rhaeto-Romance (rm) 1813	Kirundi (rn) 1814	Romanian (ro) 1815
Kinyarwanda (rw) 1823	Sanskrit (sa) 1901	Sindhi (sd) 1904	Sangho (sg) 1907	Serbo-Croatian (sh) 1908	Sinhalese (si) 1909	Slovak (sk) 1911
Slovenian (sl) 1912	Samoan (sm) 1913	Shona (sn) 1914	Somali (so) 1915	Albanian (sq) 1917	Serbian (sr) 1918	Siswati (ss) 1919
Sesotho (st) 1920	Sundanese (su) 1921	Swahili (sw) 1923	Tamil (ta) 2001	Telugu (te) 2005	Tajik (tg) 2007	Thai (th) 2008
Tigrinya (ti) 2009	Turkmen (tk) 2011	Tagalog (ti) 2012	Setswana (tn) 2014	Tonga (to) 2015	Turkish (tr) 2018	Tsonga (ts) 2019
Tatar (tt) 2020	Twi (tw) 2023	Ukrainian (uk) 2111	Urdu (ur) 2118	Uzbek (uz) 2126	Vietnamese (vi) 2209	Volapuk (vo) 2215
Wolof (wo) 2315	Xhosa (xh) 2408	Yoruba (yo) 2515	Zulu (zu) 2612	Country code list	Argentina, 0118, ar	Australia, 0121, au
Austria, 0120, at	Belgium, 0205, be	Brazil, 0218, br	Canada, 0301, ca	Chile, 0312, cl	China, 0314, cn	Denmark, 0411, dk
Finland, 0609, fi	France, 0618, fr	Germany, 0405, de	Hong Kong, 0811, hk	India, 0914, in	Indonesia, 0904, id	Italy, 0920, it
Japan, 1016, jp	Korea, Republic of, 1118, kr	Malaysia, 1325, my	Mexico, 1324, mx	Netherlands, 1412, nl	New Zealand, 1426, nz	Norway, 1415, no
Pakistan, 1611, pk	Philippines, 1608, ph	Portugal, 1620, pt	Russian Federation, 1821, ru	Singapore, 1907, sg	Spain, 0519, es	Sweden, 1905, se
Switzerland, 0308, ch	Taiwan, 2023, tw	Thailand, 2008, th	United Kingdom, 0702, gb	United States of America, 2119, us		

Selecting languages using the language code list

Some of the language options (such as 'DVD Language' in the Setup Navigator) allow you to set your preferred language from any of the 136 languages listed in the language code list on the previous page. Select 'Other Language'. Use the joystick (left/right) to highlight either the language name or code number. You can also use the number buttons if you're entering a language code. See the language code list above for a complete list of languages and codes.

Glossary

Analog audio - An electrical signal that directly represents sound. Compare this to digital audio which can be an electrical signal, but is an indirect representation of sound. See also Digital audio.

Aspect ratio - The width of a TV screen relative to its height. Conventional TVs are 4:3 (in other words, the screen is almost square); common system of encoding digital audio, found on CDs and DAT. Excellent quality, but requires a lot of data compared to formats such as Dolby Digital and MPEG audio. For compatibility with digital audio recorders (CD, MD and DAT) and AV amplifiers with digital inputs, this unit can convert Dolby Digital, DTS and MPEG audio to PCM. See also Digital audio.

PBC (PlayBack Control) (Video CD/Super VCD only) - A system of navigating a Video CD through on-screen menus recorded onto the disc. Especially good for discs that you would normally not watch from beginning to end all at once—karaoke discs, for example.

Progressive scan video - Also called non-interlaced video, this method of displaying a picture updates all the lines in one pass, resulting in a more stable, flicker-free image than interlaced video (for a given scanning rate). See also Interfaced video. See also pages 22, 60.

Regions (DVD-Video only) - These associate discs and players with particular areas of the world. This unit will only play discs that have

compatible region codes. You can find the region code of your unit by looking on the rear panel. Some discs are compatible with more than one region (or all regions).

S1 S-video output - This S-video signal format includes aspect ratio information (4:3 or 16:9) within the video signal. TVs which are compatible with S1 S-video automatically switch aspect ratio according to the signal. See also S-Video Out.

S2 S-video output - S2 is an enhanced version of S-video which, in addition to aspect ratio information, contains letterbox / pan & scan information. Widescreen TVs which are compatible with S2 S-video automatically switch aspect ratio according to the signal. See also S-Video Out.

Sampling frequency - The rate at which sound is measured to be turned into digital audio data. The higher the rate, the better the sound quality, but the more digital information is generated. Standard CD audio has a sampling frequency of 44.1kHz, which means 44,100 samples (measurements) per second. See also Digital audio.

Slideshow (DVD, Video CD/Super VCD) - A feature of some DVD discs in which still pictures recorded on the disc cycle automatically as the audio is played. See also Browsable Picture.

Super Audio CD (SACD) - Super Audio CD is a high quality audio disc format that can accommodate high sampling rate stereo and multichannel audio, as well as conventional CD audio all on the same disc.

Troubleshooting

Incorrect operation is often mistaken for trouble or malfunction. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Inspect the other components and electrical appliances being used. If the trouble cannot be rectified after checking the items below, ask your dealer to carry out repair work.

No sound out of the 8 analog outputs.

- Check the toggle switch on the back. Make sure it is in the center 'Auto' mode.
- Make sure the volume is turned up and the volume is not muted (blinking volume LED).

The disc won't play or is automatically ejected after loading.

- Make sure the disc is free from dirt and dust and is not damaged.
- Make sure the disc is loaded with the label side face-up and aligned properly in the disc tray guide.
- Incompatible region number: If the region number on a DVD-Video disc is not region 1, the disc cannot be used.
- Condensation inside the player: Allow time for condensation to evaporate. Avoid using the player near an air-conditioning unit.

Player suddenly stops after playing for hours.

- Player is too hot. Unplug player and allow to cool for 10 minutes. Relocate player to a cooler location. Do not block vents under unit and in cover.
- Line voltage may be high or low. Line voltage must be within 10% of rated voltage. Player will not operate at voltages under 118V or 218V, and may over heat at voltages over 132V or 264V.

DVD-Audio playback stops.

- The disc may have been illegally copied.

Picture playback stops and the operation buttons cannot be used.

- Press (Stop), then start playback again (Play).
- Switch the power off once, unplug from the wall socket, then plug back in and switch on again using the remote STANDBY/ON button.

New settings made in the Setup screen menus while a disc is playing are ineffective.

- Some settings can be changed while a disc is playing, but are not effective until the disc is stopped then restarted: Press (stop), then start playback again (Play).

Settings are canceled.

- When the power is cut due to power failure or by unplugging the power cord, settings will be canceled: Press STANDBY/ ON on the remote to turn the player off. Wait for –OFF- to disappear from the display, then unplug the power cord.

The remote control doesn't seem to work.

- The remote control is too far from the player, or the angle with the remote sensor is too wide: Use the remote within its operating range.
- The batteries are exhausted: Put in new ones.
- Try the other remote supplied.

No picture/No color.

- Incorrect video connections: Check that connections are correct and that plugs are inserted fully. Also check the video cable for damage.
- Check that cables are connected to Input connectors instead of Output connectors.
- TV/monitor or AV amplifier settings are incorrect: Check the instruction manual of the connected equipment.
- The video output is set to progressive but your TV/monitor is not compatible with progressive scan: Change to a

composite or S video connection and go to the video setup menu and change the output to Interlaced.

Screen is stretched or aspect does not change.

- The TV Screen setting in the Initial Settings menu is incorrect. Set it correctly for your TV/monitor.
- If your TV/monitor is connected using an S-video cable, try changing the S-Video Out setting.

Picture disturbance during playback or the picture is dark.

- This player is compatible with Macro-Vision System copy guard. Some discs include a copy prevention signal, and when this type of disc is played back, stripes, etc., may appear on some sections of the picture, depending on the TV. This is not a malfunction.
- Due to the player's copy protection circuits, connection of this device through a VCR or an AV selector may prevent recording or cause picture problems. This is not a malfunction.

No audio, or audio is distorted.

- No audio is output during slow motion playback or when scanning discs other than audio CDs.
- Some DVD discs do not output digital audio: Switch your amplifier to the player's analog outputs.
- Check that the disc is free from dust and dirt, and that it is not damaged.
- Check that all interconnects are firmly inserted.
- Check that you are connected to the outputs not the inputs.
- Check that the plugs and terminals are free of dirt, oxide, etc. and clean if necessary. Also check the cable for damage.
- Make sure the player's output is not connected to the amplifier's phono (turntable) inputs.
- Check your amplifier/receiver's settings (volume, input function, speaker settings, etc.).

The analog audio is OK, but there appears to be no optical/coaxial digital audio signal.

- Make sure that the Digital Out setting is set to On.
- Check that a red light is shining out of the optical digital output. If so, it is most likely working and the problem is elsewhere.
- Check that the Dolby Digital, DTS and MPEG out settings are suitable for your amplifier/receiver—check the instruction manual that came with your amplifier/receiver.
- SACDS and some DVD-Audio discs do not output digital audio. Listen through the player's analog audio outputs.

Noticeable difference in DVD and CD volume.

- This is due to differences in the audio format and is not a malfunction.

Noticeable difference in Player and pass-through volume.

- This is because the pass-through source does not match the player volume. Adjust the pass-through source volume. This is not a malfunction.

Cannot play multichannel audio.

- Make sure that Audio Output Mode is set to 5.1 Channel.
- Check that the Dolby Digital, DTS and MPEG Out settings are suitable for your amplifier/receiver—check the instruction manual that came with your amplifier/receiver.
- DVD-Audio and SACDs do not output multichannel digital audio. Listen through the player's analog outputs.
- Check that the settings in the Speaker Installation screen are correct.
- Check the audio options available from the disc menu.

Cannot listen to high-sampling rate audio through the optical/coaxial digital output.

- Make sure that Linear PCM Out is set to Down Sample Off .
- Use the MSB Network output.
- As a copy-protection measure, some DVDs do not output 96kHz audio. In this case, even if set to Down Sample Off, the player automatically outputs the audio at 48 kHz. This is not a malfunction. Use the MSB Network for full resolution.

Cannot output 192kHz or 176.4kHz digital audio from optical/coaxial output.

- The player does not output digital audio from the optical/coaxial jacks at these sampling rates. The digital output is automatically downsampled. Use MSB Network output.

Audio is distorted and full of static on a particular DVD-Audio track or disc but DVDs and CDs play fine.

- Check if the disc is recorded in 44.1 kHz sampling rate (press display button on remote) and if the digital output is enabled (Is a red light coming out of the optical digital output?) If so, go to initial setup menu and turn off the digital output.

Cannot output 96kHz or 88.2kHz digital audio from optical/coaxial output.

- Check that Linear PCM Out is set to Down Sample Off.
- Some discs are digital copy protected and do not output high sampling rate digital audio. In this case the output is automatically downsampled. Use the MSB network output.

No DTS audio output from optical/coaxial output.

- If this unit is connected to a non-DTS compatible amplifier or decoder using a digital audio cable, set DTS Out to DTS>PCM. If you do not do this, noise will be output when you play a DTS disc.
- If this unit is connected to a DTS-compatible amplifier or decoder using a digital audio cable, check the amplifier settings,

and that the cable is properly connected.

Audio mix does not sound right or sounds incomplete (for example, inaudible dialog).

· Make sure that Audio Output Mode is set to 2 Channel if you've connected to the stereo inputs on your amplifier or TV. If you are using the downmixing in the volume control part of the player to downmix the center channel make sure you have connected your front channels to A1 and A2 outputs.

Disc containing the MP3 tracks won't play.

· This player is compatible with multi-session discs, but only plays sessions that are closed.

· If the message UNPLAYABLE is displayed when you try to play a disc/track, check the audio file formats.

Can't hear effect of TruSurround.

· TruSurround does not work with CD, MP3, DVD-Audio, SACD or 96kHz linear PCM DVD.

· The Tru-Surround effect is only output through the AUDIO OUT (2ch) analog audio outputs.

· Make sure that Audio Output Mode is set to 2 Channel.

· The effectiveness of TruSurround varies with the disc.

The audio recorded on a Super VCD disc is not output properly.

· If the audio is switched to [2] when playing a Super VCD that contains only one stereo soundtrack, there may be no sound at all. Press AUDIO to change the soundtrack

IEEE1394 troubleshooting

No IEEE1394 audio output.

· If the front panel IEEE1394 indicator is lit then:

- Check that your AV receiver is DTCP (Digital Transmission Copy Protection) compatible
- Check that your AV receiver is compatible with the type of disc that you're trying to play (for example, SACD).

· If the front panel IEEE1394 indicator is unlit then:

- Check that your AV receiver is set to the correct input.
- Check that the IEEE1394 cable is connected properly and that the cable isn't damaged. Use an IEEE1394 cable no longer than 11 ft. / 3.5 meters.
- Check that components connected using the IEEE1394 interface are switched on and IEEE1394 Audio compatible. Do not connect DV format players/recorders or personal computers.
- Check that the IEEE1394 Audio Out setting is ON.

Auto Select Play doesn't work.

· Make sure that the receiver has been selected in the Auto Select Play menu.

· Make sure that IEEE1394 Audio Out is set to On.

· Auto Select Play doesn't work while LINK CHECK shows in the front panel display (see IEEE1394- related messages).

IEEE1394 audio is temporarily interrupted.

· See IEEE1394 related messages for possible causes of this.

No multichannel IEEE1394 audio.

· For multichannel SACD playback, make sure that SACD Playback is set to Multi-ch Area.

· For multichannel DVD-Audio playback, make sure that Audio Output Mode is set to 5.1 Channel.

Playback starts automatically when the input function of the AV receiver is changed to this player.

· This is an IEEE1394 feature and not a malfunction.

A connected IEEE1394 component doesn't work with this player.

· Depending on the connected component, this player may not work properly with it. See also the operating instructions that came with the other component.

Static electricity or other external influences may cause malfunctioning of this unit. In this case, unplug the power cord and then plug back in. This will usually reset the unit for proper operation. If this does not correct the problem, please consult your dealer.

IEEE1394-related messages

You may see the following messages displayed in the front panel display when using the IEEE1394 interface:

LINK CHECK - The player is checking the IEEE1394 network. It does this, for example, when components are added or removed from the network. The sound may be interrupted if this happens during playback.

PQLS ON - Displayed when the player receives a rate control on request from the receiver during playback. The sound may be interrupted momentarily when this happens. Note that the PQLS feature works only when the player is connected to a single receiver.

PQLS OFF - Displayed when the player receives a rate control off request from the receiver during playback. The sound may be

interrupted momentarily when this happens.

LOOP CONNECT - The IEEE1394 network cannot function because it is connected in a loop.

BUS FULL - The IEEE1394 bus has reached its capacity and cannot transmit any more data.

Limited Warranty

All MSB products carry a one year warranty from the original retail purchase date, or a two year warranty from the original date sold to a dealer, which ever is first.. MSB warrants that products distributed by MSB in the USA that fail to function properly under normal use due to a manufacturing defect when installed and operated according to the operating instructions enclosed with the unit will be repaired or replaced with a unit of comparable value at the option of MSB without charge to the customer for parts or actual repair work. Parts supplied under this warranty may be new or rebuilt at the option of MSB. This warranty covers the product during the period whether in the possession of the original owner or any subsequent owner. In the event service is required, the product must be delivered within the warranty period, transportation prepaid, from within the US. The customer will be responsible for removal and installation of the product. This warranty does not cover any product which is used in any trade or business, or in an industrial or commercial application. This warranty does not cover damage to discs, damage resulting form alterations, modifications not authorized in writing by MSB, accident, misuse or abuse, damage due to lightning or to power surges, subsequent damage from leaking, damaged or inoperative batteries or the use of batteries not conforming to those specified in the operating instructions. This warranty does not cover the cost of parts and repair which would be otherwise provided without charge obtained from any other source, or damage caused by the use of unauthorized parts or labor, or from improper maintenance. Altered, defaced or removed serial numbers void this warranty. MSB excludes any obligation on its part for incidental or consequential damages related to the failure of products to function properly under the conditions set for above. MSB limits its obligation under any implied warranties including but not limited to the impled warranties of merchantability and fitness for a particular purpose to a period not to exceed the warranty period. No warranties shall apply after the warranty period. This warranty gives you specific rights, the customers rights may vary from state to state.

If you have a failure, call MSB and describe the problem. If no solution is possible, the product must be boxed in the original or equivalent packaging and returns to MSB. No returns are accepted without an RMA number. Upon receipt, MSB will repair or replace any defective product. MSB will return the product at MSBs expense in the packaging supplied. Shipping damage is the responsibility of the consignee.

Care and Placement of the Player

Cleaning the lens is not recommended as you may damage the lens. Condensation can be a problem if you bring the player into a warm room from the outside. Do not use the player for at least an hour. Your player generates quite a bit of heat. DO NOT BLOCK THE VENTILATION SLOTS IN THE COVER. Be sure it is placed on a hard surface so air can pass under the product. Do not place in a cabinet with amplifiers without proper ventilation. Do not place on top of any other product which gets warm. Do not use in dusty, damp or locations exposed to the sun. Do not move or bump the player when a disc is spinning. Do not transport the player with a disc in it.

Upgrades and Modifications

Removal of the cover - Unplug the AC power. Work on a soft scratch resistant surface like a carpeted floor. Start with the unit upside down and remove three screws located along the front edge of the cover. Then turn the unit over and remove the three screws along the back edge of the cover. Loosen the four screws holding the endcaps on as they may prevent the cover from moving easily. Slide the cover toward the front of the unit and lift off. Turn and place on its face carefully as a cable is attached. Place a box or object for the cover to lean on. Now the upgrades may be installed or the settings changed.

Super DVD Audio Player Specifications

Inputs:	**8 Line Level RCA Inputs (5Vrms maximum)**
	Composite Video
	S Video
	YUV Video
Audio Outputs:	**8 volume controlled RCA outputs (5 Vrms Max)**
	5.1 channel Line level DB-25 output
	Balanced Line level XLR front only
Digital Outputs:	**Coaxial**
	Optical
	MSB Network
	IEEE 1384
Attenuation Range:	**-70 dB to +10 dB**
Step Size:	**1 dB per step**
Trim Range:	**26 dB in 1 dB size steps**
Dynamic Range:	**103 dB**
THD+N:	**.002%**
Signal to Noise Ratio:	**103 dB**
Channel Separation:	**110 dB**
Power Consumption:	**W**